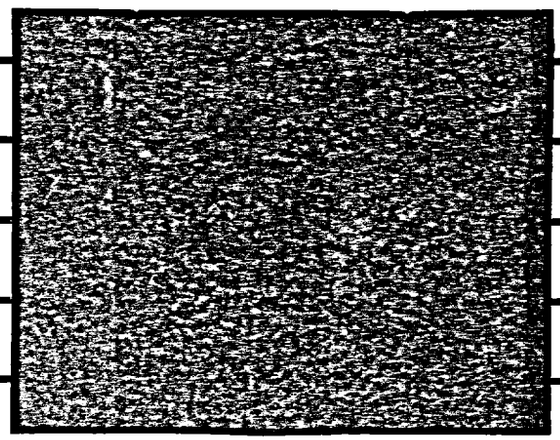
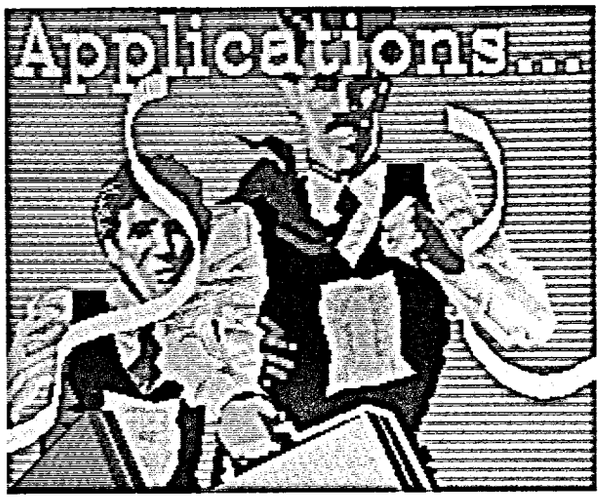


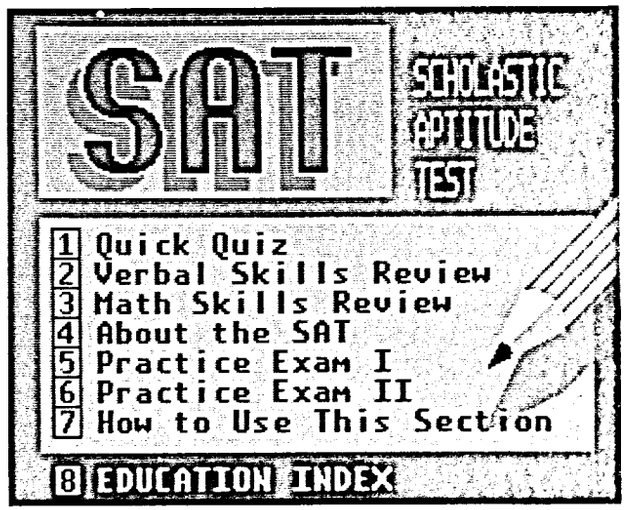
VIDEOTEX AND THE PERSONAL COMPUTER

The personal computer is turning out to be one of the most powerful tools of the eighties. As a problem solver, number cruncher, master of a thousand chores and as an extension of the human mind itself, it is finding application in virtually every facet of human life.

NO ONE SAID THE JUNGLE WOULD BE EASY

But not all PCs are created equal. Such is the competitive world of the personal computer that manufacturers, suppliers, and software publishers are all looking for the feature, the capability that gives the edge of their particular product over the rest of the pack. Survival, in this game, depends on it. The survivors will be the ones which offer the most in terms of capability, flexibility, and price performance. And that is as true for the system as it is for the software.



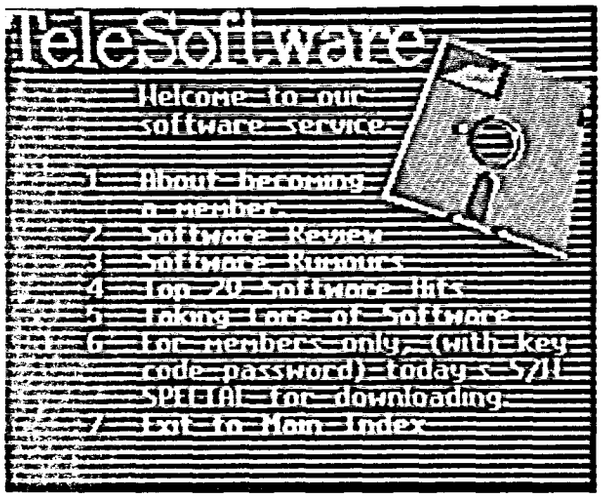


VIDEOTEX – THE RACE IS ON

A new technology which unleashes a vast potential for the personal computer is now here. So valuable is its potential, that personal computer giants such as IBM and Apple have moved quickly to offer it. So vast is its promise, that some are calling it a brand new medium, unlike print, TV or even traditional computer communications. Communications leaders such as AT&T, CBS, the Times Mirror Group, Infomart and others are pouring millions of dollars into developing its potential.

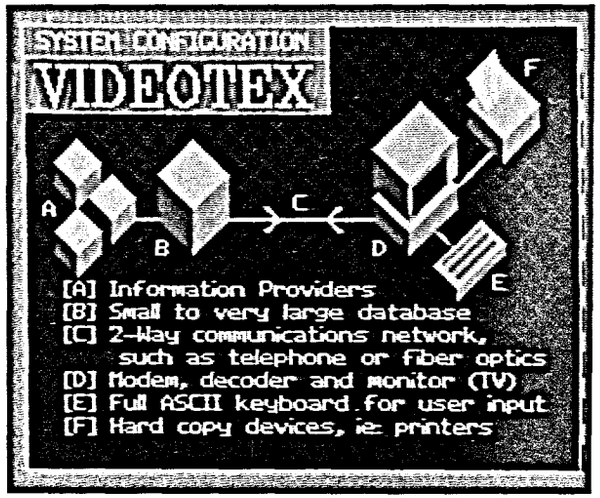
It's called videotex. Already, it is a growing force in today's computer communications marketplace. Many observers feel that videotex is at the same take-off point where personal computers were four years ago, and that before the end of the decade, it will have become an integral part of business, institutional and home systems. Hardware or software suppliers which fail to find themselves in the videotex running — and quickly — could well find themselves out of the race. For good.

This brochure outlines some of the major trends in the merging of videotex and personal computer technologies.



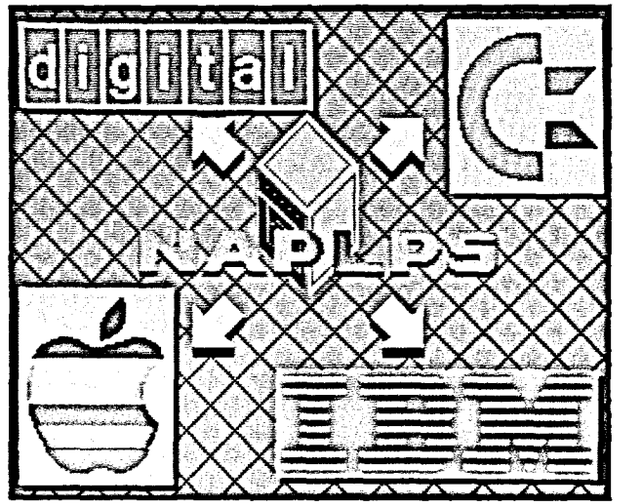
VIDEOTEX – UNLEASHING THE POTENTIAL OF THE PERSONAL COMPUTER

Videotex is a remarkably powerful, flexible and, above all, inexpensive new technology that is changing the face of the whole computer communications industry. *And now, it is transforming the capability and range of the personal computer.*



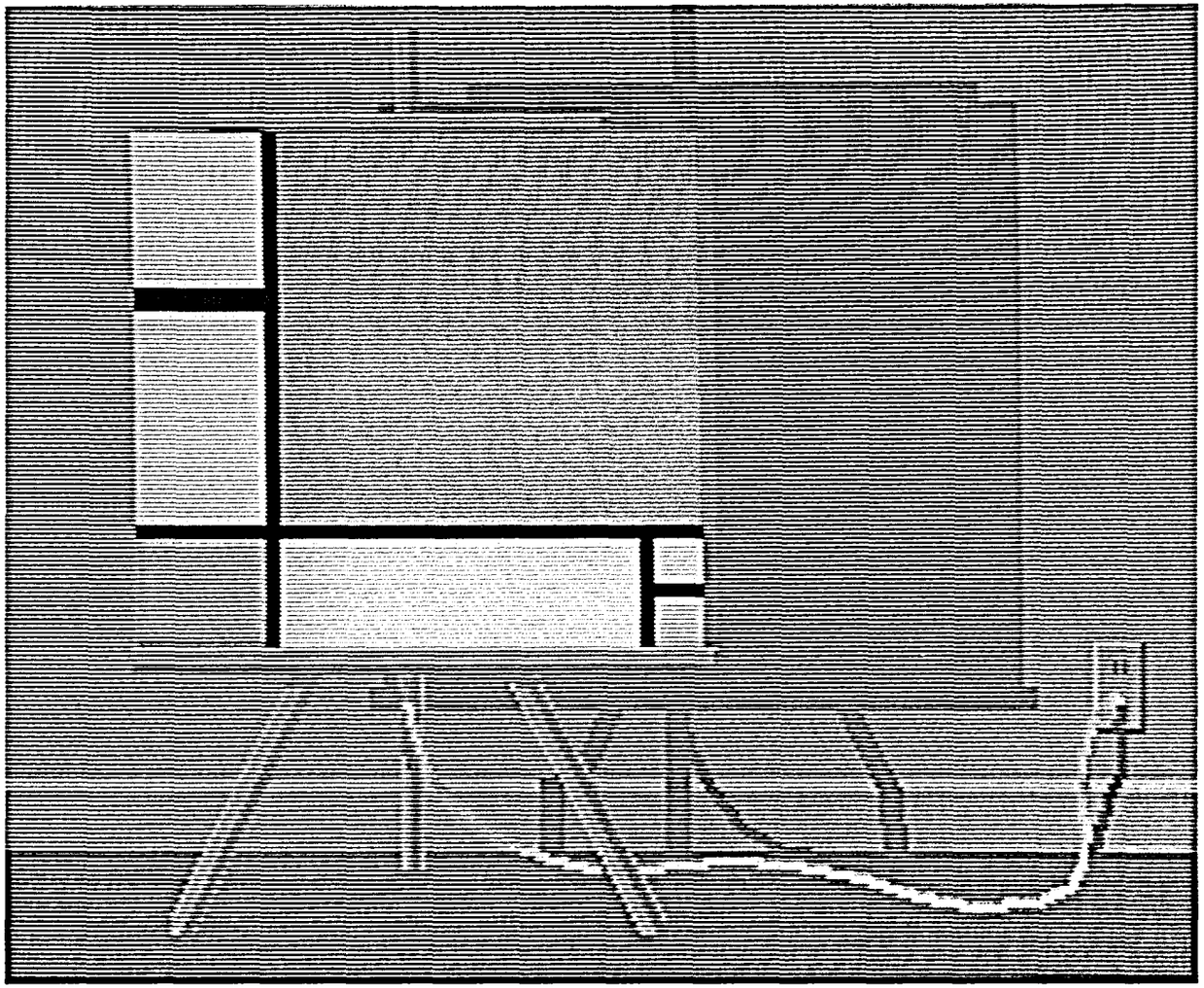
WHAT IS VIDEOTEX?

Essentially, videotex is a protocol for creating, storing, transmitting and retrieving computer text and graphics. Videotex uses standard transmission links to transmit information, in both text and stunning colour graphics to a television set or computer monitor. With videotex, a user can retrieve any one of thousands of "pages" of data at the punch of a few keys, from data banks next door or half a planet away. Data is sent by telephone, cable, or satellite — it makes no difference, technically, which — and is displayed at the user's command on a terminal, which can be either a personal computer or a slightly modified home TV set, with a decoder attached.



In North America and many other parts of the world, the accepted videotex standard is known as NAPLPS. The NAPLPS standard, based on technology developed in Canada, is known in Canada as Telidon.

The North American standard for videotex, NAPLPS, is destined to become the graphics and text communications protocol for a vast majority of applications, replacing text-and-number-only codes such as ASCII in applications where graphics are required, just as colour TV transmission standards replaced black and white about 20 years ago. Moreover, the designers of Telidon – NAPLPS have incorporated the standard ASCII coding system as part of the protocol, so that letters and numbers respect the ASCII convention. And hardware that can handle ASCII characters (modems, phone lines, TV cables, local networks) can also handle NAPLPS pictures.



A NEW ART FORM?

The graphics capability of the NAPLPS videotex standard is awesome. Full colour, stunning creations that elevate computer graphics to a new art form are not only possible to create, but easy and inexpensive to execute, store and transmit. Even blinking, highlighting and sophisticated animation are possible, increasing the inherent capability of an already powerful communications medium. It has been compared to alphanumeric (text and number) protocols as colour TV is to the Gutenburg Bible.

QUARTERL
REPORT
DIVISIONS
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NUMBERS
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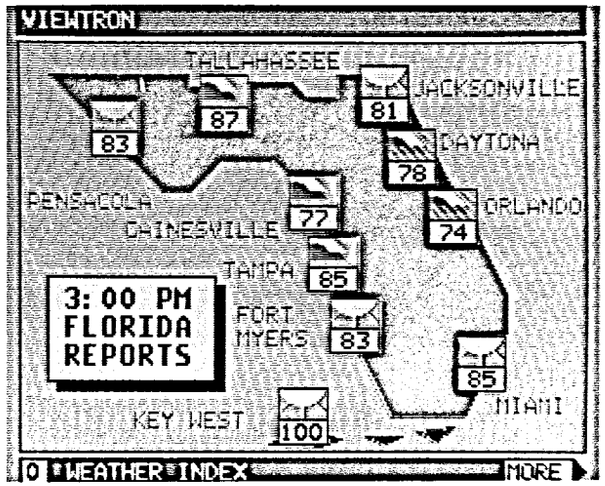
NUMBERS
For quick
comprehension,
use colorful
graphics.

A NEW MEDIUM OF HUMAN COMMUNICATION

Videotex opens up the possibility of a vast array of exciting services: electronic mail, the electronic newspaper, shopping and banking at home, education, entertainment, specialized information services, and thousands of special-purpose applications. The list ends at the frontier of imagination itself.

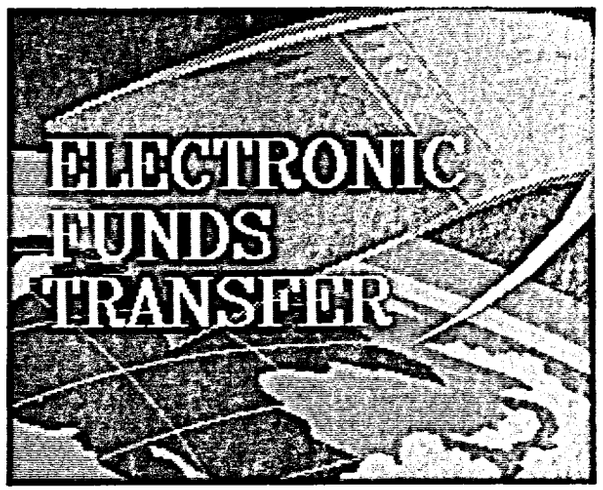
And the usefulness of videotex is not limited to the transmission and reception of graphics and text over distances. The same technology, and its inherent advantages — low cost, ease of use, and superb colour graphics — make it ideal for a myriad of stand-alone applications.



VIDEOTEX: POISED FOR LIFT-OFF

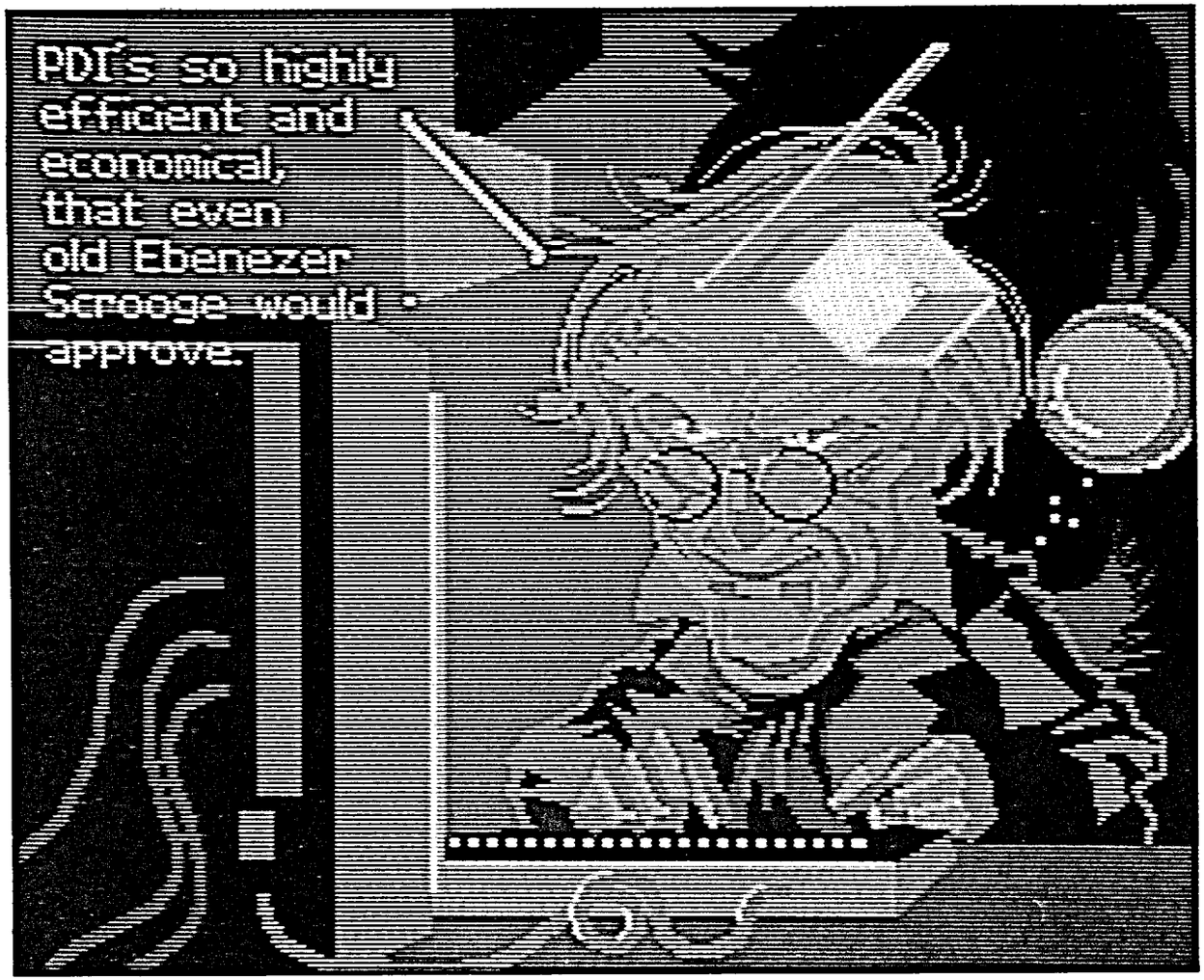
Hundreds of companies, including some of the biggest players in the communications and publishing industries — AT&T, CBS, the Times Mirror Group and many others — have already embraced the NAPLPS videotex standard and have begun or are planning major new commercial initiatives based on the technology. Examples:

- The Times Mirror Group of Los Angeles operates the most comprehensive videotex project in the United States, providing information to hundreds of homes in the Los Angeles and Orange County areas of California as a prelude to full-scale commercial services in 1984.
- Viewtron, a full commercial videotex service, went on-line in October 1983 in South Florida. Knight Ridder, the newspaper chain which offers the service, plans rapid expansion to other market areas.
- Commercial Telidon service in Manitoba, Canada, providing information to the farming and agribusiness communities, has been in operation for two years under the name "Grassroots" and is expanding to other areas.



The system, operated by Infomart, provides up-to-the-minute information on commodity prices, markets, weather, financial information and a host of other services on terminals by Electrohome.

- Key Com, a partnership of Honeywell and Field Publishing, is inaugurating Chicago's first major videotex service in 1984.
- Major banks such as ADP and its home banking interchange, CitiBank, as well as the Bank of Montreal are actively planning to introduce bank at home services using NAPLPS systems. Initial trials are already underway.

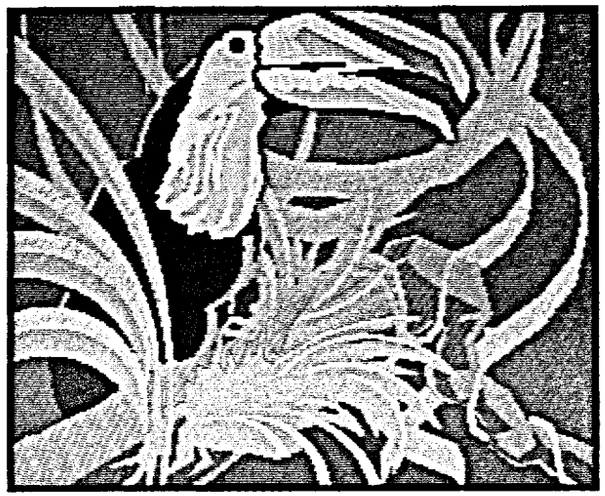


NAPLPS – AN ENCODING SCROOGE

The excitement surrounding NAPLPS is due in part to the remarkable way it encodes colour graphic information. The designers of the protocol, recognizing that local memory and processing power has now become cheaper, thanks to the chip and the microcomputer, turned their attention to a deficiency inherent in other videotex and graphic coding systems: they all were voracious consumers of storage and transmission capacities. As a result, transmission and storage costs tended to make them unsuitable for many applications. The NAPLPS protocol, by contrast, uses what are known as Picture Description Instructions (PDIs), a notably Spartan encoding method. A line, for example, requires only three instructions: the beginning and end co-ordinates and a command to join. The savings, both in transmission and storage requirements, over protocols which require every pixel to be identified are astounding.

THE FUTURE OF GRAPHICS RESOLVED

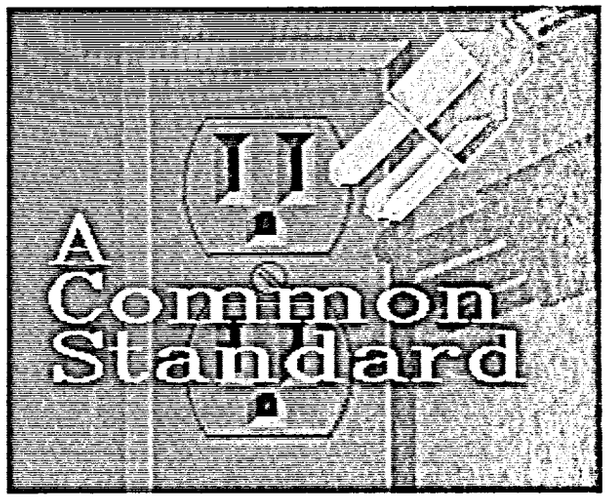
What's more, the graphics produced by NAPLPS are independent of the display medium. On a low-resolution display, they will of course show the "staircase" result characteristic of low-resolution terminals. But displayed on a high-resolution monitor, the same graphics become as flawless and as stunning as the monitor allows. There is an important aspect to this feature that those organizations who have embraced the NAPLPS protocol already realize. Information formatted according to the NAPLPS protocol today will never — never — become obsolete because of future changes in display technology and resolution. *The coding protocol is completely independent of any display technology.* So NAPLPS improves as display resolution advances.



Whatever improvements come down the pipeline, such as digital TV, for example, NAPLPS will always be able to display its creations to the limit of the display medium itself. In a world where obsolescence seems to be the only constant, NAPLPS already has a **solid foothold on the future,** no matter what direction the technology may take.

ONE SINGLE, ELEGANT STANDARD

Nothing is more frustrating and discouraging to the personal computer user than the tangle of incompatible computer standards, systems and protocols that currently chokes the marketplace. And nothing could be more significant, and of greater value to the user than a single, standardized system for videotex technology such as NAPLPS. The North American Presentation Level Protocol Syntax (NAPLPS) has emerged as the videotex standard for North America, the Far East and other areas of the planet. And NAPLPS, in turn, forms part of the world standard for videotex, ratified in 1980 by the CCITT, the international telecommunications



standards organization. It matters not what system or software a particular service is created on. All personal computers running with NAPLPS will be able to interact with the North American videotex protocol and retrieve data formatted in the NAPLPS standard. So the chaos of competing standards in most areas of computer technology — and the lack of compatibility — has already given way to one standard: a simple, elegant solution to an otherwise unsolvable problem.

TIMEX

APRIL 1984

1 Letters: the good, the bad & the...
2 Updates on information databanks
3 Insights on the role of technology
4 Consumer report: high res videotex
5 Military interplanetary budgets
6 A hot summer for microcomputers
7 Executive rewards in high tech
8 Investing in robots
9 The evolution of Telidon
10 Looking ahead with fiber optics
11 The latest in software packages
12 The who's who in american videotex

13 Return to National Gateway

PUBLISHING IS GOING ELECTRONIC

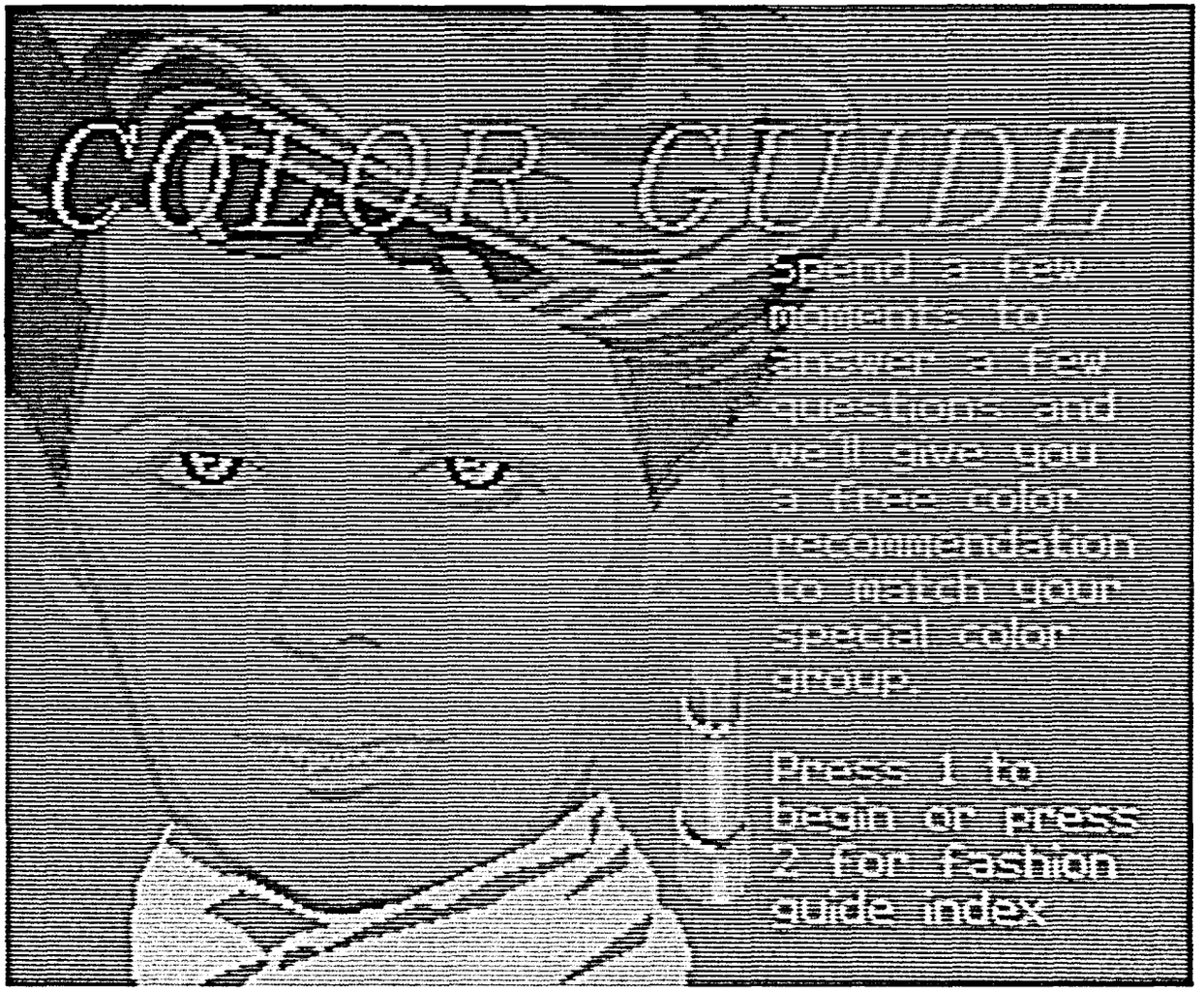
Current estimates show that there are more than 2,000 publicly available databases in the United States and another 500 in Canada. These range from special-purpose databases serving the law, health or scientific communities, to the large general purpose databases such as The Source, CompuServe, the New York Times, Dow Jones News/Retrieval and many others. Estimates are that there will be a 20 per cent growth rate in the number of publicly accessible data banks at least until 1990. The rise of electronic publishing is unmistakable.

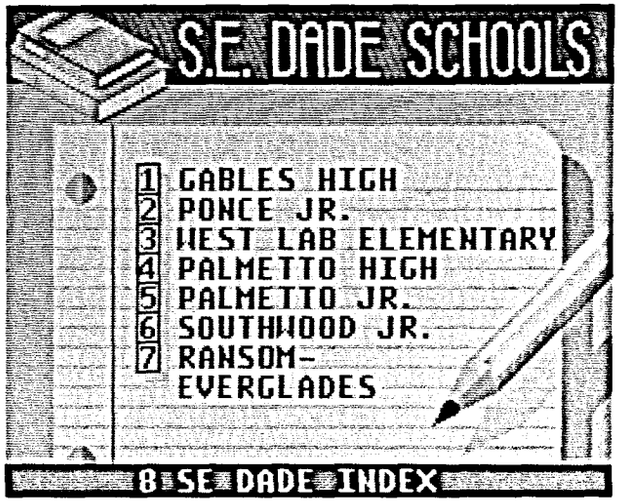
ELECTRONIC PUBLISHING IS GOING 'NAPLPS'

While the majority of databases currently operate under the ASCII or similar alpha-numeric protocols, many of the newer public databases are planning for combined text and graphic capability, and many existing text-only bases are planning to convert. The writing, or should we say the graphic, is on the wall. For many purposes, the use of graphics is an indispensible way to organize and display data meaningfully, or to quickly indicate trends. Graphics communications for business purposes is one of the hottest industry trends today, and it's not difficult to see why.

MORE THAN JUST A PRETTY FACE

But graphics are more than just a simple tool to organize data colourfully. As humans, we rely on visual data in the real world to convey and make sense of most of the information we receive. Any computer medium which disregards this fact cannot achieve its potential. The general public's experience with and demand for high quality graphic communications, spawned by the popular video arcade games, is maturing. And graphics will be the key to extension of database use from specialized or business clients, the mainstay of today's computer communications applications, to a more widespread general public use. Futurists point out that, given the costs and distribution problems inherent in conventional publishing and information dissemination techniques, it's only a matter of time before electronic publishing — with all that implies — comes to the living room. Widespread electronic publishing without the use of high-quality graphics is inconceivable.



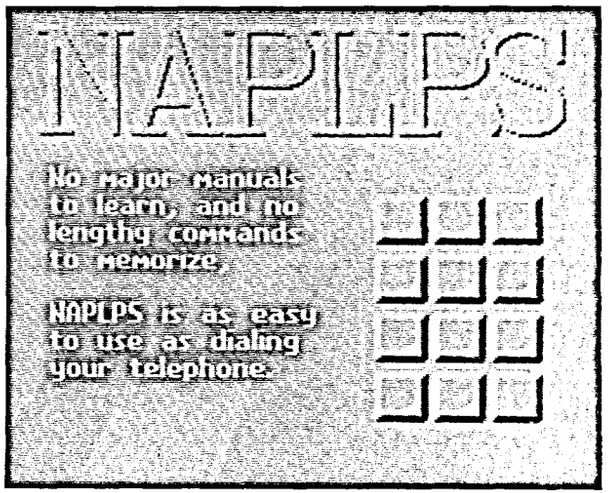


Indeed, text and graphic electronic publishing in its embryonic form is among us now. Large retail outlets are exploring the use of Telidon - NAPLPS systems to introduce shop-at-home services, complete with full visual representations of sale items. Developments in electronic newspapers and electronic magazines indicate that text and graphic combinations not only have more appeal but convey information more meaningfully than text-only material.

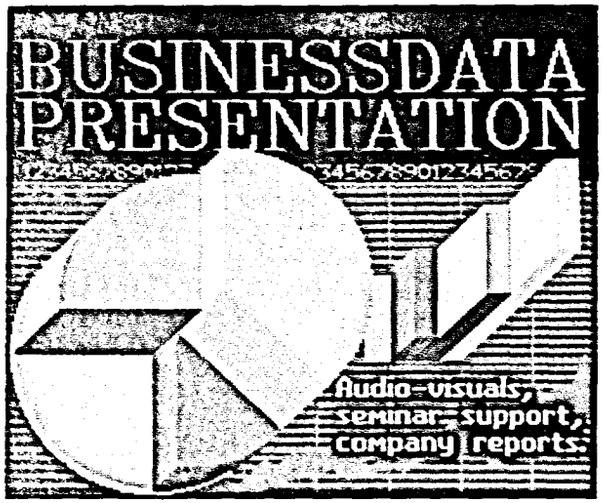
Systems using Telidon - NAPLPS protocols can be far more effective in conveying information graphically than a system which relies on pages of figures or piles of computer printout sheets. That may have been the way to present information in the past, when users tended to be well versed in computer techniques and conventions. But today's personal computer user is more than likely to be a non-expert who does not understand programming and who does not relate to reams of computer data or complex log on, password and retrieval instructions. With this new generation of computer user, software and database managers are increasingly finding that user friendliness is the key to success.

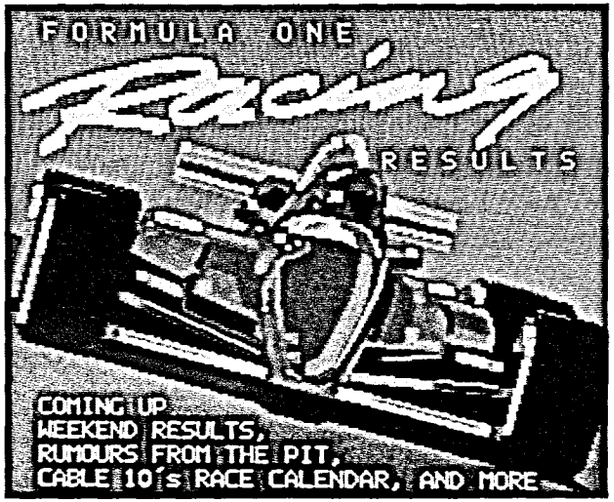
THE TERMINAL – DESIGNED FOR THE AVERAGE GUY

The simplicity and elegance of the Telidon - NAPLPS protocol spills into the design of the Canadian-made Telidon systems and interface. Telidon decoders, which allow users to access information banks, are as simple to use as a touch-tone telephone, and are often seen at exhibitions, displays and other areas where first-time users by the hundreds — young, old, experienced or neophyte — become instant experts. Most interactive systems designed for public use are menu-driven, where every instruction is carefully given on the screen itself.



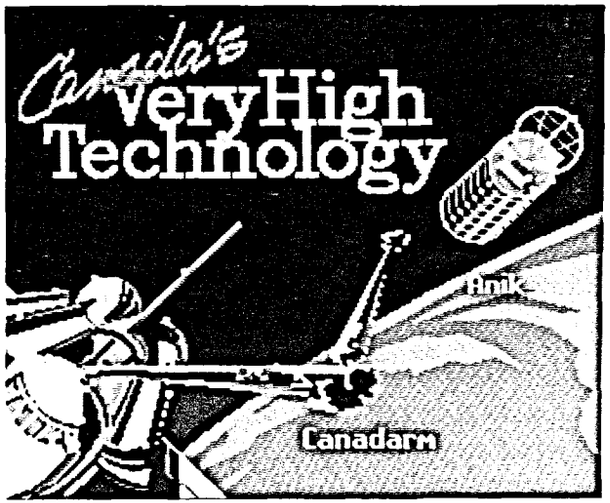
Telidon - NAPLPS information may be accessed through traditional tree-structured databases, keyword searches, or even the more powerful user profile techniques — in short, the protocol inflicts no restrictions on database and retrieval architecture. And the hardware and software developments which are transforming the personal computer into Telidon - NAPLPS terminals incorporate the same simplicity and ease of use.





A QUICKLY MATURING TECHNOLOGY

Videotex is an embryonic concept that is growing fast. The North American standard first saw the light of day a scant five years ago in the laboratories of the Department of Communications, a Canadian government department which undertakes a broad range of high technology communications research. In 1978 it announced the invention of Telidon, a radically new way to create, store and transmit computerized text and graphic information. The U.S. communications giant, AT&T, quickly recognizing the potential of Telidon as a computer communications medium, adopted the major features of the Telidon protocol and within three years — by 1981 — the technology had been refined and adopted as the North American standard. The original Telidon protocol was also upgraded so that now, Telidon and NAPLPS are identical. Since then, growth has been dramatic. Telidon – NAPLPS information banks have sprouted up around the continent. Businesses have begun using Telidon technology for a myriad of purposes. Some are simple uses, such as timely and informative internal communications, or the creation of blockbuster audio-visual presentations, briefing aids, or training programs, or as a powerful sales and marketing medium. Major publishing, communications, financial and retail giants are moving swiftly into Telidon – NAPLPS testing and are beginning commercial, to-the-living-room services. It has spread to the educational milieu where boards of education, universities, colleges and educational TV networks are experimenting with the medium and introducing services. TV Ontario, a progressive educational television network, has been using the broadcast version of Telidon, teletext, since 1980.



CANADA – SECOND TO NONE

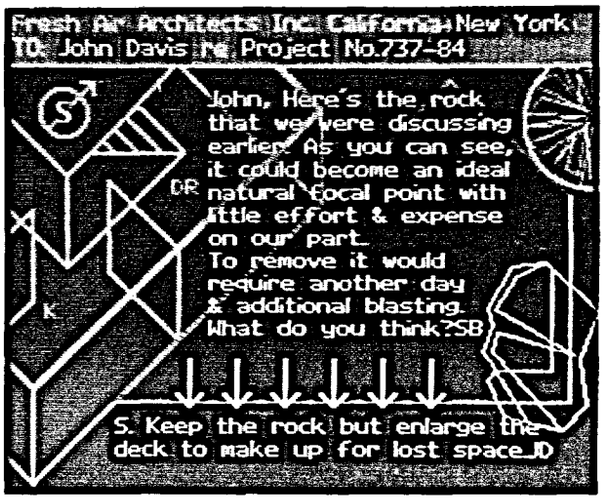
It is not surprising that most of the leading-edge developments in Telidon – NAPLPS technology, software and applications are coming from Canadian companies. Telidon, after all, was born in an Ottawa, Canada, research laboratory five years ago and the government, recognizing the enormous potential of the medium, has helped to create an environment since then which is spurring developments on all fronts. Not only has the Canadian government promoted refinements to the technology itself, but has provided seed funds for conducting videotex and teletext trials across the country during the past three years. These are operating videotex systems and services, some already on a commercial basis, and include applications in education, business, retail, banking, real estate, law, agriculture, government, entertainment, health, public relations, marketing and many more. The result has been a tremendous amount of experience with the medium in a remarkably short time. It has given companies and organizations in Canada more hands-on experience with and working knowledge of Telidon – NAPLPS than in any other nation, has created an enviable reservoir of expertise with the new technology, and has placed Canada in the fore-

front of world-wide videotex developments.

The Canadian superiority in videotex did not occur out of the blue. Canada and Canadian companies have, over the years, built an outstanding reputation in many fields of high technology and computer communications including data networks, transmission media, cable TV, communications satellites, and fibre optics. So when Telidon – NAPLPS emerged, it did so from a solid foundation of computer communications expertise and talent in the Canadian private sector.

NAPLPS,
Opening up
exciting new
worlds of
information.

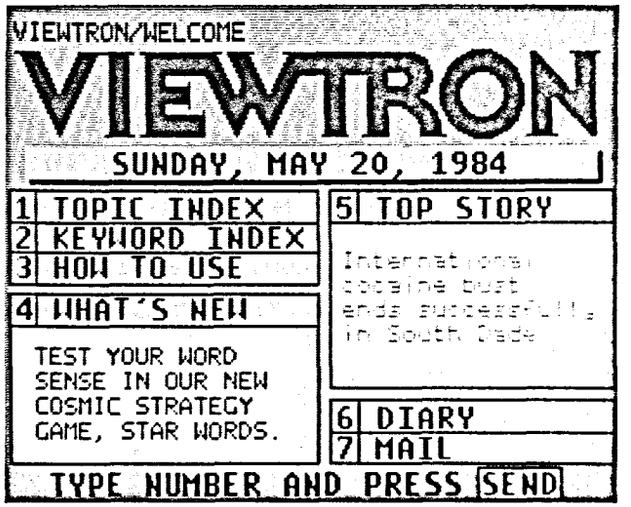
NAPLPS AND THE PERSONAL COMPUTER



At the outset, it appeared as though videotex and personal computer developments were evolving along separate courses. Early videotex equipment and terminals were dedicated machines, performing functions related only to the videotex medium. And there will always be the need, in many applications, for videotex-only terminals. More recently, however, there have been a series of dramatic developments which are merging the technologies of videotex with the personal computer.

THE PERSONAL COMPUTER AS TELIDON TERMINAL

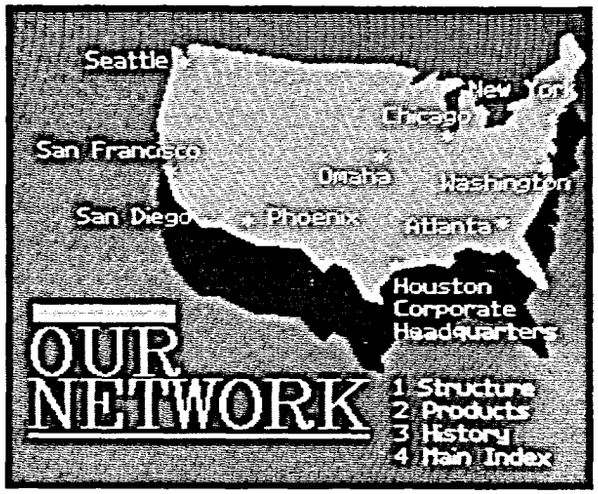
It began when the larger personal computer and component manufacturers started developing and offering hardware components which would allow personal computers to run NAPLPS videotex services. Telidon boards now exist for the Apple, the IBM PC and Commodore, and others are under development for the most popular models. These convert personal computers into Telidon – NAPLPS terminals.



With these boards, and appropriate software, the computer can retrieve any "page" of information in existing or planned videotex data banks, through a standard modem, just as a normal Telidon decoder does. And using standard peripherals, such as colour printers and plotters, hard-copy versions of the data can be generated. Even the production of 35 mm slides is possible through standard photographic peripherals. Alternatively, pages can be stored locally on the personal computer's own storage medium.

THE SOFTWARE REVOLUTION

More recently, some exciting software developments are adding to the capability of personal computers and NAPLPS. Not surprisingly, they come from Canadian companies; a result of Canada's head start with Telidon - NAPLPS systems.



THE PERSONAL COMPUTER - DECODED!

An Ottawa firm, Microstar Software, has devised a powerful software package which converts the IBM PC, Compaq, Columbia Data Products, Hyperion and IBM PC look-alikes into Telidon - NAPLPS terminals. For the growing numbers who already have made the plunge into personal computing, the Microstar route will be one of the simplest, and least expensive, means to climb on the Telidon bandwagon. The software is available on disk. The user needs a 128K system, colour card, monitor and modem.

Not only does the software allow users to access NAPLPS databases and display subsets, but these can be accessed through public gateway systems, such as iNet. It will even automatically sense when Telidon - NAPLPS protocols are being accessed and configure accordingly, alleviating the user from any complex set-up procedures. So the creators have managed to conserve one of the most fundamental aspects of Telidon accessing — ease of use and user friendliness. As Microstar describes it, "It's a neophyte's dream."

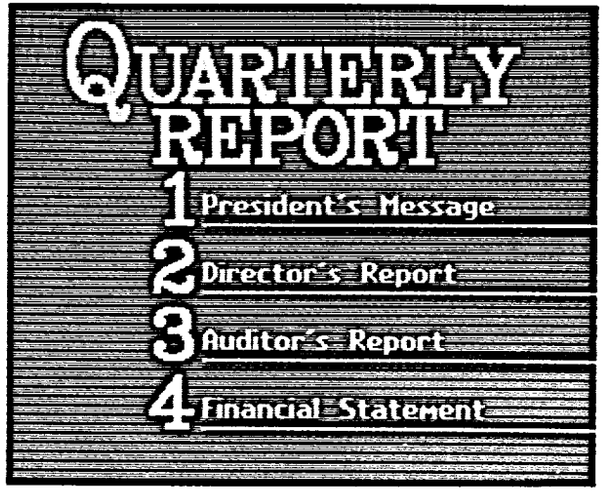
Through an arrangement with Infomart, the largest Canadian Telidon - NAPLPS information provider, purchasers of the Microstar package are given 10 free hours of access time to the vast Infomart databases.

A POWERHOUSE OF FOUR

Another Ottawa company, Microtaure Ltd., has developed some highly sophisticated — and highly successful — software which it calls "Teligraph". The Microtaure Teligraph system incorporates four powerful programs which, together, recast the personal computer into a Telidon - NAPLPS page creation system.

The first program allows the PC to retrieve pages from Telidon databases and either display them, pump them through to outputs such as colour printers or photographic units, or store them on disk by page or by groups for later processing and use. The second provides a full Telidon - NAPLPS page creation capacity, using a two-screen system. One screen provides codes and instructions, the second provides the "canvas" on which the Telidon text and graphics are created. With a third program, redefinable text becomes possible, allowing the use of non-Roman alphabets, symbols, ideographs and the like. And finally, a fourth program allows a user to assemble pages, which have either been retrieved from a central data base or created on the spot, for dramatic audio-visual presentations.

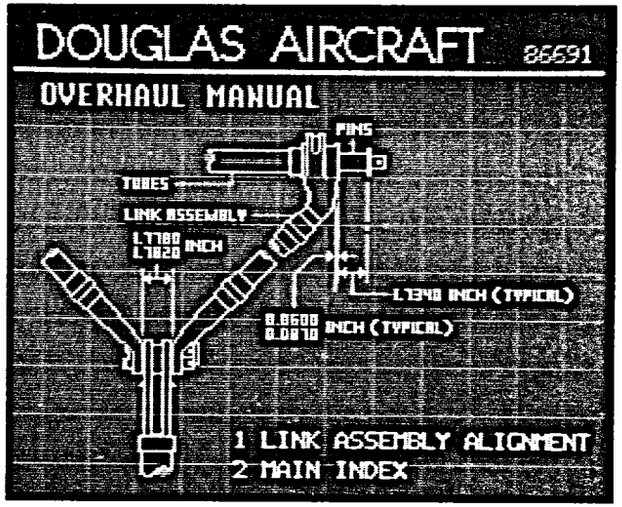
The Microtaure package is configured for the IBM PC and requires a 16-bit machine with a minimum 256K RAM, both colour and monochrome screens, a colour card and modem.



THE PERSONAL COMPUTER AS PAGE CREATOR

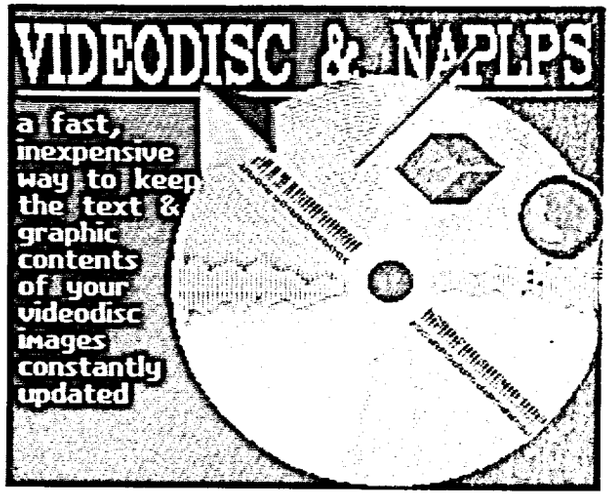
Formic, an enterprising Quebec firm, has devised a unique series of software packages for the Apple computer and the IBM PC, which transforms these micros into full Telidon page creation systems. Traditionally, Telidon page creation systems, known in the trade as Information Provider Systems (IPS), have been dedicated graphics installations. The Formic interface unit, which runs at a fraction of the cost, represents a cost reduction dramatic enough to allow small firms, organizations or even individuals to enter the growing Telidon – NAPLPS page creation market. The units have raised considerable interest, since they now offer the opportunity for special-purpose databases to be created and networked at minimal cost. The page creation software, which resides on an ROM interface card instead of diskette, provides the capacity, flexibility and ease of use that, until now, was available only on dedicated special-purpose IPS equipment. The addition of hard disk storage allows the creation of a local, and sizeable, Telidon – NAPLPS information bank which can be retrieved by anyone with a decoder.

In addition to the page creation software, the company can also provide turnkey page creation systems and customized packages for special purpose Telidon – NAPLPS applications.



THE LINK TO THE LIVING ROOM

Avcor Ltd., a division of Southam Communications of Toronto, has recently brought out Telidon decoder software for the Commodore 64, opening the door to Telidon – NAPLPS service for these popular and inexpensive home computers. A similar package is to be available for the IBM PC. The transformation of the ubiquitous home computer into a Telidon – NAPLPS terminal removes one of the major obstacles to widespread consumer Telidon use — the cost of dedicated Telidon decoders. Now, with simple software, the home computer can read and display a subset of Telidon databases.

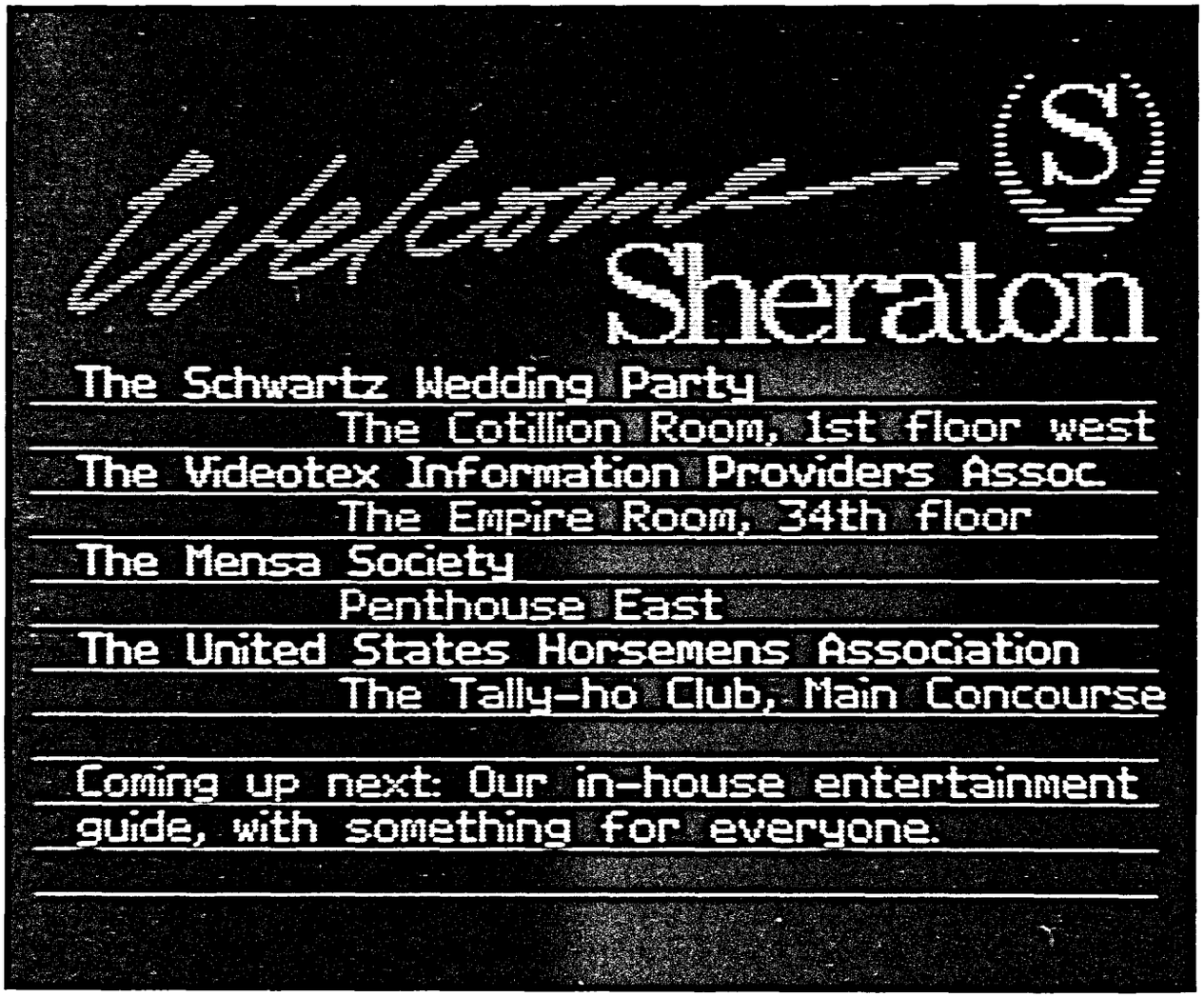


PICTURE PAINTER

Cableshare, a leading videotex software firm, has developed the most powerful micro-based page creation system. For a fraction of the cost of dedicated frame creation machines, the picture painter will do all the key page creations functions such as scaling, macro's, rotation, animation, colour palettes, reflection, multiple text fonts, etc.

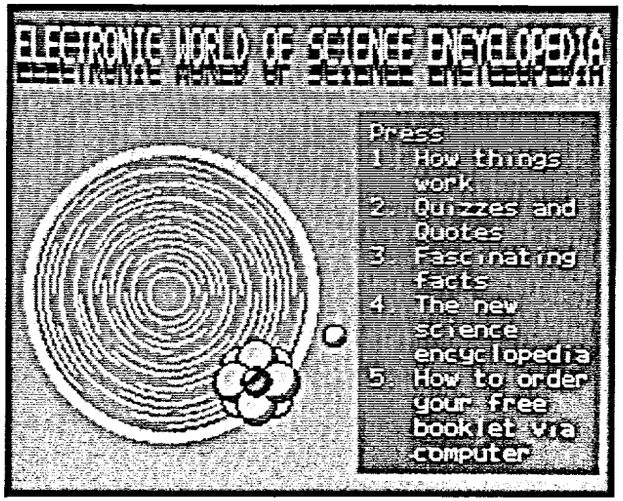
NORPAK

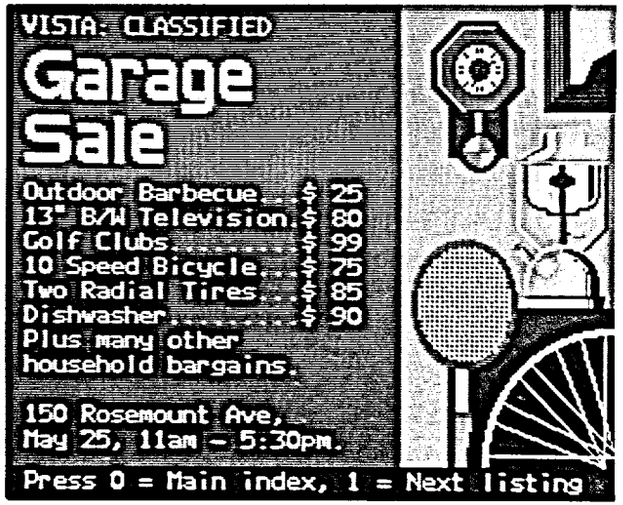
If you need a production page creation machine go to world leader, Norpak. Their page creation machines have been proven as powerful production machines, and you should see the new products they are developing.



NETWORK VIDEOTEX SYSTEMS

Network Videotex Systems Inc. has developed a full (SRM) Telidon decoder on a board that fits into the IBM PC personal computer and its look-alikes. This standard NAPLPS decoder represents an important development in the move to merge the technologies of the personal computer and NAPLPS. It also solves many of the graphic limitations of the IBM PC. Network also has a software decoder for the Commodore 64 which displays subsets of, and is fully compatible with, the NAPLPS standard.

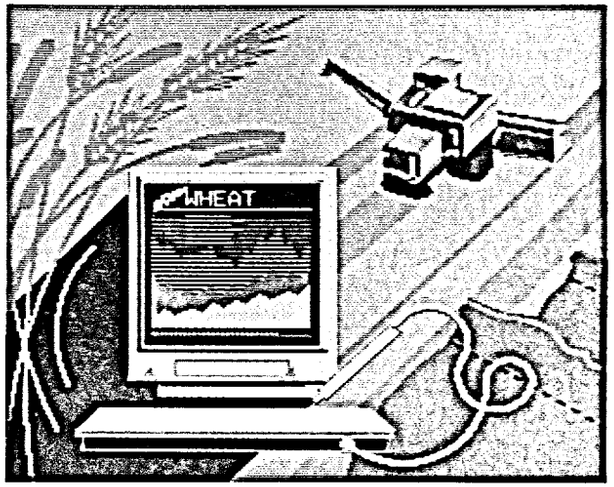




THE PERSONAL COMPUTER AS HOST DATABASE

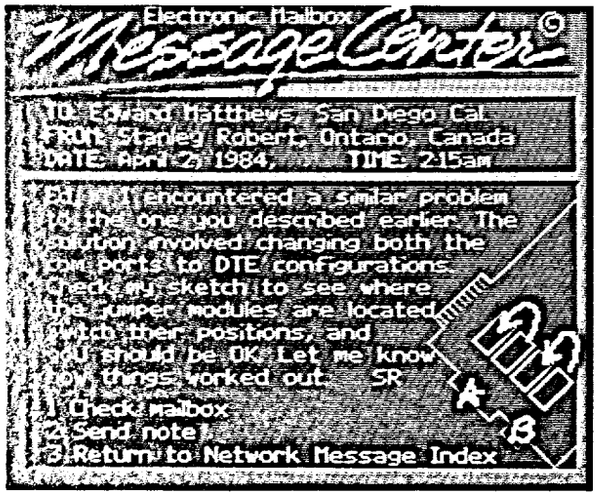
Now, the personal computer can function as an unattended host database as a result of software developed by Tayson Information Technology of Calgary, Alberta. With the Tayson package, the computer currently handles two users simultaneously (two RS 232 ports and modems are required) and a further enhancement allowing eight simultaneous users is on the way. Users access pages from a database stored by the computer. The software allows the design of a flexible database structure to meet the needs of users.

Designed to operate with the IBM PC, the software requires a minimum of 64 K of memory, and 128 K is recommended. The version allowing eight simultaneous users will require somewhat more memory. The software also allows Telidon - NAPLPS pages to be created or edited.



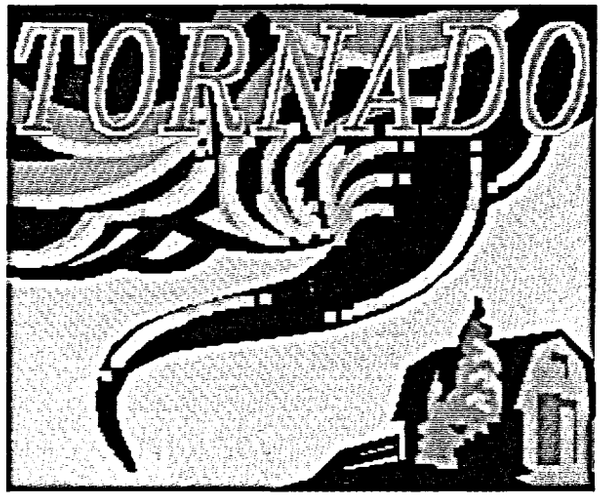
A DEVELOPING TREND

The foregoing examples indicate a growing trend which is extending the range of Telidon - NAPLPS applications and possibilities, while at the same time vastly increasing the potential of the personal computer. Perhaps most significant of all, yet of no surprise to those who are familiar with the NAPLPS concept, the information created on the personal computer systems conforms to the same standard as the hundreds of thousands of pages of information in NAPLPS data banks throughout North America.



ENDLESS APPLICATIONS

- Boards of education in the Province of Quebec are planning to use systems based on personal computers to provide up-to-the-minute information exchange among community colleges on a shared network.
- Small organizations such as community service groups now find it possible to become information providers — electronic publishers. As electronic publishing becomes more widespread and the penetration of Telidon – NAPLPS retrieval equipment continues, electronic publishing is emerging as an exciting alternative for small groups who need to communicate to a large audience and yet haven't the means to engage in costly printing and distribution activities.

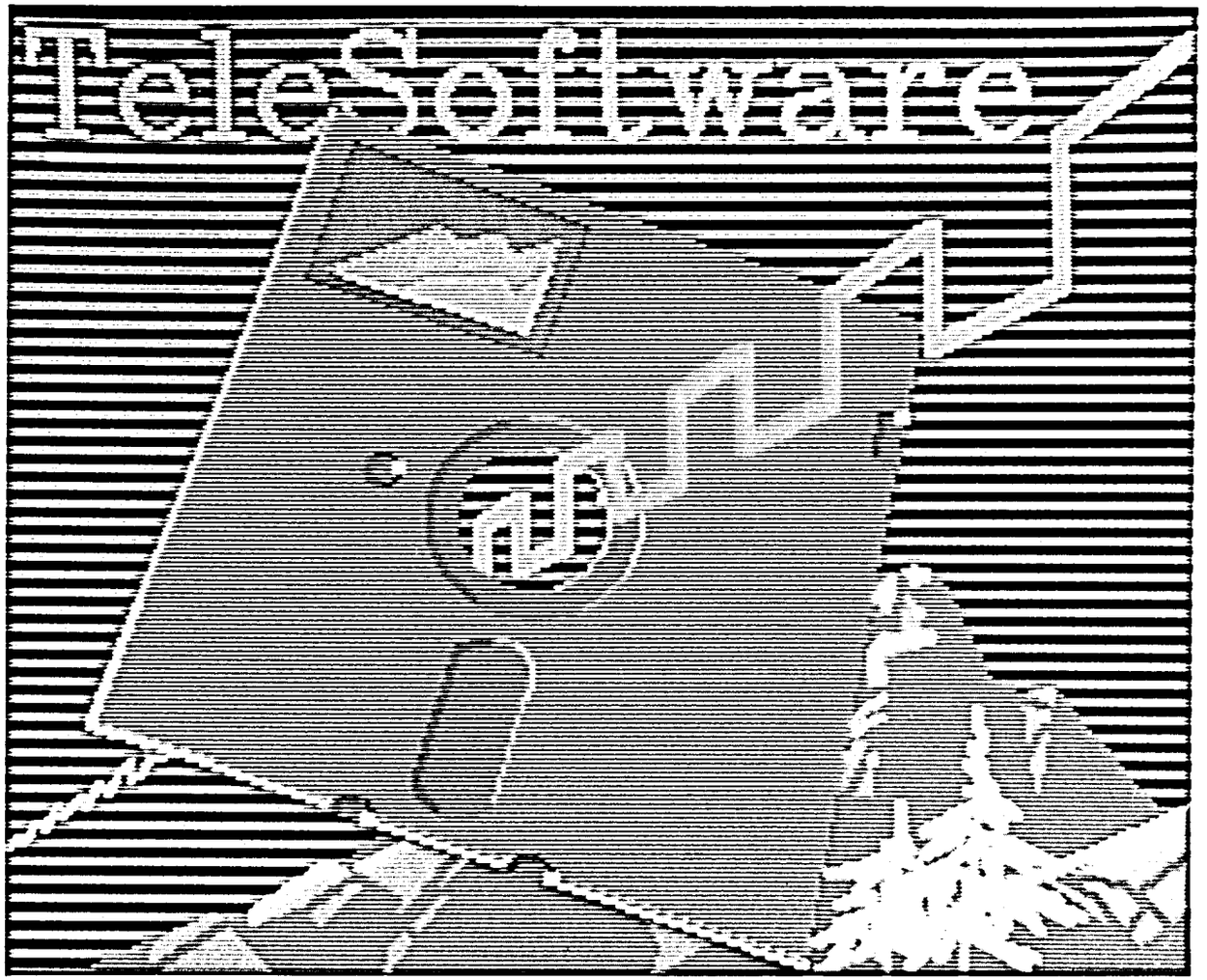


- Many organizations — large and small — have already replaced traditional 35 mm slide and sound presentations with impressive electronic productions for audio-visual briefings, training purposes, sales, presentations – anywhere where 35 mm slides were previously used. One advantage of Telidon – NAPLPS audio-visual presentations, aside from the spectacular way they communicate information, is that the altering and updating of material is simple and changes can be instantly incorporated.
- Telidon has proven to be an attention grabber at exhibitions, trade shows and displays where information in words and pictures has to be communicated effectively. Systems can be designed to operate automatically or interactively at the spectator's command.
- There is a tremendous growth in the use of electronic maps, charts and graphics by television broadcasters, cable outlets or TV program producers, particularly to enhance news and public affairs coverage and to provide special effects. The simple, inexpensive and easy-to-operate text and graphics capacities of Telidon – NAPLPS are proving to be a boon in these areas. And the fact that a whole range of graphic material can be created, stored or retrieved instantaneously fills the need for lightning speed in a field where deadline pressures are a fact of life.

TELESOFTWARE: THE LATEST TREND

The home consumer is not likely to invest the time or energy required to keep track of the rapid changes in software. And he or she is not likely to spend hundreds of dollars for a software package which will only see occasional use.

The key is to retail software via telephone or cable. The NAPLPS videotex standard, because of its Spartan coding protocol, makes downloading high-quality colour graphics and text easy and inexpensive. Small wonder that such companies as Videoway and Nabu Network are investigating the market for telesoftware. And software retailers are beginning to offer telephone-based telesoftware to deliver their products to consumers.



BRINGING IT ALL BACK HOME

Currently, about 90 per cent of Telidon - NAPLPS use is by the commercial, educational, government and institutional communities. And this roughly parallels the trend in personal computers generally, apart from the video game units. But Telidon - NAPLPS is destined to come home to the living room soon — and the way is already being paved by some of the largest retail, banking and service institutions on the continent. They have seen the vast potential in shop-at-home and bank-at-home services and are actively planning — and in some cases have begun — major initiatives in these areas. Any home-based system for direct retailing will require sophisticated graphic and, in the future, even photographic capabilities. In applications such as electronic catalogue shopping for example, the customer has to see what he or she is getting. With the electronic newspaper or magazine, graphics will be an integral part of the package, just as they are in today's printed versions. (The Telidon protocol, with the use of digitized TV techniques, is capable of generating photographic as well as graphic images.)

Clearly, the rapid penetration of computers into living rooms across the country will hasten the widespread use of Telidon - NAPLPS in the home, particularly now that Canadian companies have developed the software which transforms the home computer into a Telidon - NAPLPS decoder.

THE CANADIAN CONNECTION

Developments linking the personal computer with NAPLPS systems are proceeding at a dramatic pace. Canadian companies such as Alphatel, Async, Ashdune, Avcor, Cableshare, Createx, Formic, Fulcrum Technologies, Limicon, Microstar, Microtaure, Network Videotex Systems, Softwords, Systemhouse and Tayson have packages that give the IBM PC, Apple II or IIe, Commodore 64 or other computer models, capacity in Telidon – NAPLPS. And by the time this brochure goes to print, a host of new services, systems, hardware and software offerings will likely be emerging. But one thing is clear. Most of the action is taking place in Canadian companies.

To explore the excitement and potential of this growing field further, write or call us today at the address below. We can provide more details or put you in touch with individual companies. But do it now. We're already receiving an overwhelming number of enquiries as the United States gears up to introduce commercial videotex services.

Contact:

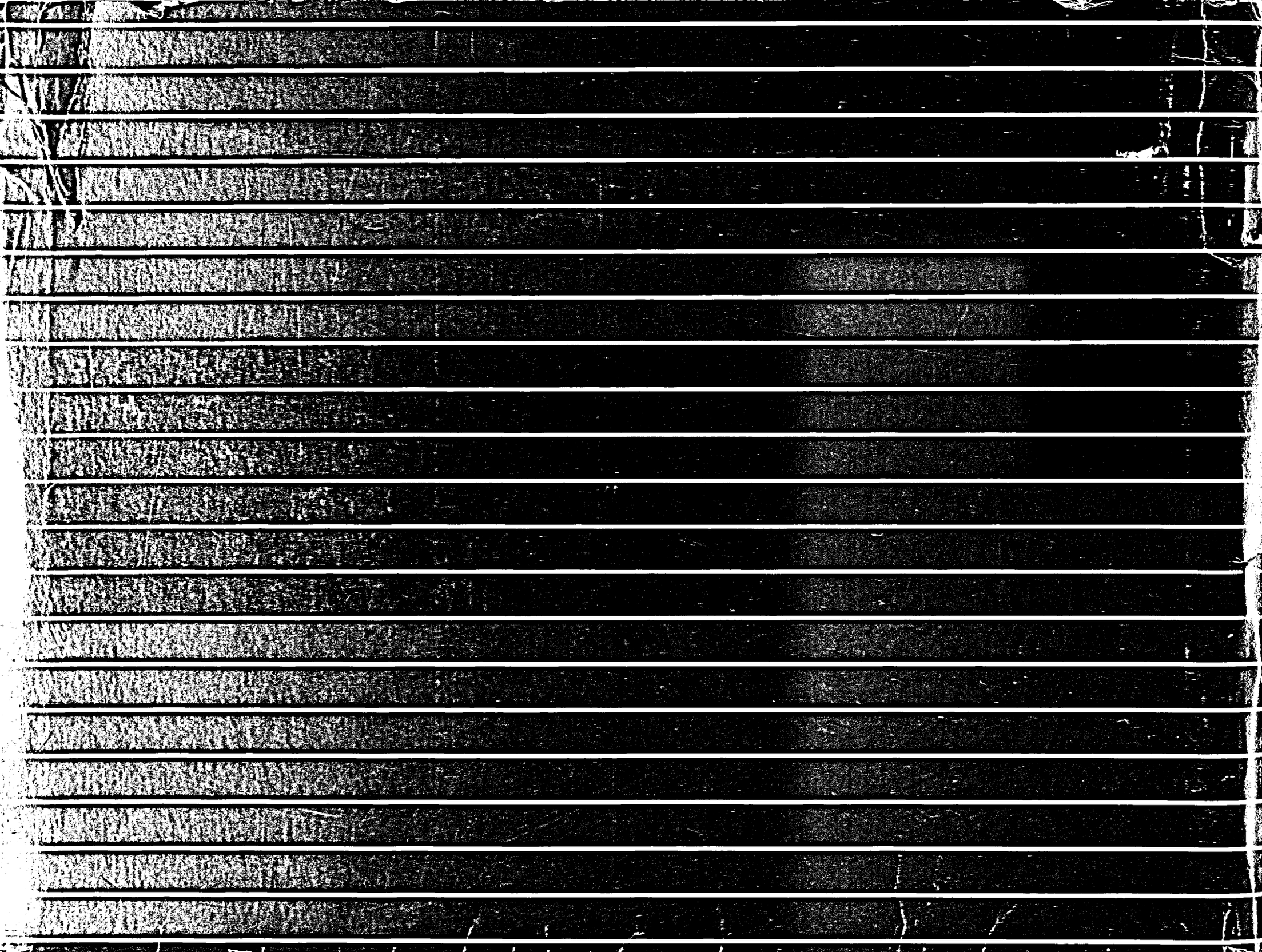
Brian Casey
Telidon Marketing (TIS)
External Affairs
125 Sussex Drive
Ottawa, Ontario
CANADA K1A 0G2
(819) **(819) 994-4445**
(819) 994-4076

This is one of a series of 10 brochures covering various aspects of this exciting new technology. Titles in the series include:

- Videotex and the World of Business
- Videotex and Banking
- Videotex: New Tool for the Retailer
- Videotex and the Personal Computer
- Videotex and Cable TV
- Videotex and Education
- Videotex: New Tool for the Travel Industry
- Videotex and Government
- Videotex and Electronic Publishing
- Videotex: A Thousand and One Applications

In addition, a Catalogue of Canadian Videotex Suppliers, is also available. These may be obtained through the contact above.

Printed in Canada.



CATALOGUE

TABLE OF CONTENTS

A CATALOGUE OF CANADIAN TELIDON NAPLPS VIDEOTEX SUPPLIERS

CATALOGUE

INTRODUCTION

Videotex is a relatively new technology. From all indications, it is emerging as a major new computer communications medium which will reach widespread use in homes, offices, schools, business, governments and other organizations across North America before the end of the decade. Already, full commercial systems and services have begun, and videotex is being used for literally hundreds of applications around the world.

Videotex makes possible the delivery of computer-based information, educational material, advertising and transactional services through ordinary telephone lines or cable. Information, in text and colour graphics, is displayed either on a TV set, a computer terminal or a monitor.

Market surveys report that the growth of videotex will be spectacular throughout the rest of the decade, and many market researchers see it as a universal computer communications medium.

The inauguration of large-scale commercial videotex services throughout the United States and Canada by computer, communications and publishing giants such as AT&T, Knight Ridder, Infomart, Times Mirror, Cox Communications and others has led to increased interest in, and knowledge of, the new medium.

TELIDON IS NAPLPS

In North America, videotex has become standardized. A single videotex standard has been accepted for use on the continent. Known as the North American Presentation Level Protocol Syntax (NAPLPS), the standard ensures the orderly development and spread of videotex and provides for compatibility among systems and services.

Although other videotex standards exist, NAPLPS became the agreed-upon standard because of its superiority over other systems. The NAPLPS standard ensures high-quality and high-resolution graphics, incorporates an elegant coding scheme which reduces information transmission and storage costs, and is designed not to become obsolete, even if there are future changes in display technology.

North American videotex began with the invention of Telidon in an Ottawa, Canada research laboratory. Telidon was first demonstrated in 1978 and was immediately recognized as a superior videotex system. Since then, the technology has been refined and accepted as the North American standard. Today, NAPLPS and Telidon are identical.

Because Telidon was first invented in Canada, Canadian companies have built up enviable expertise and capability in Telidon-based technology and services. Since Telidon was first unveiled, an ambitious and aggressive program of technology development, pre-testing, market trials, and commercial services have given Canadian companies more experience in videotex systems than any other companies.

The result: a number of Canadian companies are now recognized as world leaders in videotex technology, systems and services. They have been the choice of businesses and other organizations throughout the continent and around the world for videotex products, equipment, systems and services. Now, they are ready to provide your organization with state-of-the-art videotex products and services, and advice in planning and designing systems and applications.

NAPLPS CERTIFICATION

To ensure that a particular set of equipment or software meets the NAPLPS standard, a test package has been devised. The package consists of more than 150 electronic pages of information, covering all NAPLPS features. Users can call up the test pages by accessing the test database and verify the accuracy with which their equipment or software handles the test pages by copying the pages displayed on their equipment to a hard-copy version. For more information contact the Technology Division of the Department of External Affairs, Ottawa, Canada at (819) 994-4445.

This catalogue has been designed as an effective, easy-to-use reference source of information on Canadian companies involved in Telidon — NAPLPS products and services. The information has been organized so that you can easily find data related to your specific needs.

Use it in four ways:

1. If you are interested in a particular application of videotex, turn to the **Applications Directory**, page 5. Here, you will find a table of applications in areas such as retail, banking, tourism, cable TV, publishing, government services, personal computers, office applications and others. The table matches the application with companies providing related products or services and lists the page numbers where further information is located.
2. If you know the name of a particular company, turn directly to the **Company Profiles** section. Company profiles begin on page 7 and are conveniently listed in alphabetical order. Each profile provides an overview of company activities, an outline of its experience, a review of its products and services, and lists a contact with address and phone number for further information.
3. If you are interested in a particular videotex product or service, and want to find which companies offer it, turn to the **Systems Directory**, page 59. The systems directory lists most of the main videotex products and services now available, such as software, hardware, systems, turnkey services, consultants, computer communications, information providers and others. Each is matched with a list of companies, and a page number where information is provided.
4. If you require more general information about Telidon systems and services, or would like to arrange a demonstration of Telidon, turn to the list of **Canadian Trade Offices** on page 61, and contact the one nearest you. They can answer questions, clarify points, or steer you to other information sources. At most of the Canadian Trade Officer locations, Telidon units are available for hands-on demonstrations.

In the preparation of this catalogue, we've tried to ensure accuracy as it goes to print, notwithstanding the fact that developments are occurring so quickly in the entire videotex field that continual changes are inevitable. Company information has been provided by the companies themselves.

APPLICATIONS DIRECTORY

Company Name	Page	Retail & Advertising	Banking & Finance	Tourism	Cable TV	Education & Training	Publishing	Government Services	Personal Computers	Teletext	General Applications	Other
ADEUM ELECTRONICS	7	✓	✓	✓				✓				
AVCOR	8						✓		✓			
BCC GROUP	9			✓				✓				
CABLESHARE	10	✓	✓	✓	✓		✓	✓	✓		✓	Shopping Centre & POS Systems
CANADIAN CAPTIONING	11				✓					✓		
CEMCORP	12					✓			✓			
DELPHICRAFT	13					✓	✓					Sports, Entertainment
DMR	14	✓	✓	✓		✓		✓		✓		
DOUSERV	15			✓	✓	✓				✓	✓	Convention Systems
ELECTROHOME	16	✓	✓	✓	✓	✓	✓	✓	✓		✓	
FAXTEL	17		✓			✓		✓	✓			Stock Market
FORMIC	18				✓	✓			✓	✓		
FULCRUM TECHNOLOGIES	19				✓				✓			
GENESIS RESEARCH	20				✓	✓	✓					Children's Storybooks
GENESYS GROUP	21	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Wide range of applications
GIPSY	22					✓	✓				✓	Home Applications
HOME MANAGEMENT	23	✓			✓	✓	✓					Home Applications
IDON CORPORATION	24					✓		✓	✓	✓	✓	
IMAGE BASE	25						✓	✓				
INFOMART	26	✓	✓	✓	✓	✓	✓	✓		✓	✓	Wide range of applications
INFONORTH	27	✓			✓	✓	✓			✓		Home Applications
I.P. SHARP	28		✓				✓					
KEYSTONE	29					✓						Education Packages
LANSDOWNE	30	✓	✓									Library, Project Management
LIMICON	31	✓			✓	✓		✓	✓			Interior Decorating
MARCONI BAIRD	32		✓	✓				✓				

Company Name	Page	Retail & Advertising	Banking & Finance	Tourism	Cable TV	Education & Training	Publishing	Government Services	Personal Computers	Teletext	General Applications	Other
McLEOD, YOUNG, WEIR	33		✓									Investment, Financial Services
MEP	34							✓				Weather & Aviation Services
MICROSTAR	35								✓			
MICROTAURE	36								✓			
MTX TELECOM SERVICES INC.	37	✓	✓	✓	✓	✓	✓	✓	✓			Commodore software
NABU	38				✓				✓			
NETWORK VIDEOTEX SYS. INC.	39								✓			
NORPAK	40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
PERLE SYSTEMS	41	✓	✓									Catalogue
SONOPTIC	42							✓				
ST CLAIR	43	✓		✓			✓	✓				
STATISTICS CANADA	44				✓			✓				
SYSTEMHOUSE	45	✓	✓			✓				✓		
TALAMARK	46						✓					
TAYSON	47			✓	✓				✓			Financial
TELECOM CANADA	48	✓	✓	✓		✓	✓	✓			✓	
TELE-DIRECT	49						✓				✓	Yellow Pages
TELEGLOBE CANADA	50		✓				✓	✓				
TELETHOUGHT	51	✓				✓						
TV ONTARIO	52				✓	✓				✓		Videotex/Teletext Service
UNITED AUDIO-VISUAL	53	✓		✓	✓					✓		
UNIVERSITEL	54					✓		✓				Veterinary Medicine, Agriculture
VIDEOACCESS	55						✓					
VIDEOTEX ATLANTIC	56						✓					
VIDEOWAY	57	✓			✓	✓	✓					Teletext
VISCOUNT	58	✓	✓	✓		✓	✓	✓				

ADEUM ELECTRONICS

COMPANY OVERVIEW

Adeum Electronics is the engineering and manufacturing division of Adeum Dawning Limited, a Canadian company incorporated in 1979. Adeum Electronics was originally involved in engineering systems under contract and eventually became involved in the fledgling NAPLPS industry. Adeum has built an international reputation for its rugged and dependable public access products. The company is known for the word "ruggedized", which has long been associated with Adeum products.

EXPERIENCE

Adeum Electronics, originally geared to the design of custom videotex systems, has now also moved into the area of standard systems manufacture. Clients within the videotex industry include major NAPLPS manufacturers, international banks, and software houses working on the leading edge of system integration. Adeum supplies systems for tourism, transportation and advertising.

PRODUCTS AND SERVICES

Adeum Electronics provides integrated system hardware to the NAPLPS industry. Major products include:

- The *Adeum "Ruggedized" keyboard* — a membrane-switch, touch-key unit with adaptable graphics and programmable circuitry. The keyboard is designed for long life in public locations and can be applied to most computer systems;
- Two models of large-screen integrated terminals for public access: the *Adeum "Ruggedized" Terminal*, or ART, which is a self-contained model with database capabilities designed for mounting within a wall or separate cabinet; and the *Infohut*, which is a well-known, free-standing cabinet model for lobbies, etc.

FUTURE DIRECTIONS/ TARGET MARKETS

Adeum Electronics is committed to developing low-cost, durable videotex terminals and keyboards. This equipment is constantly being updated using state-of-the-art technology to produce products specifically designed for the public access market.

FOR MORE INFORMATION

Adeum Electronics
Division of Adeum Dawning Limited
880 Lady Ellen Place, Suite 4
Ottawa, Ontario
Canada
K1Z 5L9
Tel: (613) 729-8880

ADEUM ELECTRONICS
Div. of Adeum Dawning Ltd.

COMPANY OVERVIEW

Avcor is a division of Southam Communications Limited, a leader in business communications for over 100 years. Its diversity is reflected by interests in daily newspapers, trade magazines, radio and television broadcasting, cable TV and satellite communications.

Avcor has been a leader in the audio-visual industry for more than a decade, working with North America's leading communicators in both the public and private sectors.

Avcor has fully integrated services at its two facilities in Toronto, and uses all forms of visual presentation. It has extensive expertise in the use of computer-generated and videotex graphics and text as a dynamic presentation medium.

EXPERIENCE

Avcor has led the market in practical applications of microcomputer-based videotex systems.

Avcor Interactive Display (AID) systems:

- Promote Canadian companies at international trade fairs.
- Provide information in many languages.
- Provide trade show visitors with fast and easy access to the latest information on Canadian companies in either an electronic medium or via an instant print-out tailored to the visitor's specifications.
- Collect information on visitors' opinions and business requirements, and provide this information along with follow-up data to Canadian companies.

AID systems are also being used as electronic retail store clerks by mass market retailers. Coles Book Stores employs AID systems to promote, describe, merchandise, and manage microcomputer software products offered for sale in the store.

PRODUCTS AND SERVICES

Avcor's products and services provide the bridge between traditional and emerging communications technologies. Avcor uses all forms of visual presentation, including:

- 35 mm slides
- Videotape
- 16 mm and 35 mm film
- Film strip
- Computer graphics
- Videotex
- Teleconferencing

The Avcor *Graphics Service Bureau* provides expert frame-creation design and consultation for videotex, business graphics and graphic art applications.

Avcor's High Resolution 35 mm Slide Service processes videotex graphics into high-resolution 35 mm slides. The finished product contains none of the imperfections and jagged edges of lower-resolution graphics.

Avcor's *JORDAN Software* is an extensive line of microcomputer-based videotex software. It includes a low-cost software package which allows the Commodore 64 microcomputer to operate as a videotex-compatible terminal. JORDAN software is also available as a frame-creation package for the IBM Personal Computer in conjunction with a medium-resolution videotex terminal. Employing the latest state-of-the-art software and hardware advances, it is also fully compatible with Avcor's High Resolution 35 mm Slide Service.

JORDAN AID software provides hard-copy output, data entry and collection, multiple languages, communications and full reporting functions. It is ideal for:

- Market research
- Trade fairs
- Mass retail environments
- Training
- Promotion

FUTURE DIRECTIONS/ TARGET MARKETS

Avcor will continue its aggressive development of videotex software and computer graphics systems.

JORDAN software products are scheduled to convert other popular microcomputers into videotex-compatible terminals at extremely low cost.

AID systems will implement the latest technologies of voice response and recognition. This technology offers videotex systems extended capabilities to reach mass audiences in many languages.

Avcor will continue to lead the way in enhancing the image quality of videotex graphics. This will create new areas of activity in the integration of high-quality graphics with text for hard-copy output in a variety of media.

FOR MORE INFORMATION

Avcor
A Division of
Southam Communications Limited
512 King Street East
Toronto, Ontario
Canada
M5A 1M1
Attn: Zal Press
Vice-President
Computer Services Marketing
Tel: (416) 864-9240

avcor

BCC GROUP INC.

COMPANY OVERVIEW

BCC Group Inc. (formerly Bratton, Crews, Cumming & Associates Limited) entered the videotex industry in the spring of 1982 by developing the *Public Access Terminal Enclosure*. This project evolved through an invitation by Infomart, Toronto, to design and manufacture a cabinet, or enclosure, that would house videotex electronics. The enclosure would be located in public areas and needed to be aesthetically pleasing and durable.

BCC has 13 years of experience designing and manufacturing displays and exhibits, and is now successfully providing public access enclosures that are considered to be an industry standard.

EXPERIENCE

BCC's clients include Infomart, the Government of Canada, and Cableshare Ltd. in Canada, and Macrotel Inc., Melvin Simon & Associates, Chronicle Videotex and General Motors in the United States.

PRODUCTS AND SERVICES

BCC Group Inc. offers the public access terminal enclosure and the design and manufacture of other enclosures to meet the needs of each client. Designed from the inside out, the enclosure provides the durability and flexibility necessary to meet the needs of this ever-changing industry, whether for videotex, teletext or videodisc.

FUTURE DIRECTIONS/ TARGET MARKETS

BCC Group Inc. is looking to the future and developing new ideas for public access. Although the industry is still very young, BCC will be ready to support it with a quality product as the marketplace moves.

The U.S. market is the key to the growth of BCC Group Inc. as a supplier to the videotex and teletext industries.

FOR MORE INFORMATION

BCC Group Inc.
166 Norseman Street
Toronto, Ontario
Canada
M8Z 2R4
Attn: Robert W. Lingley
International Sales
Tel: (416) 237-0071

COMPANY OVERVIEW

Cableshare is an experienced videotex development group. Its broad computer expertise extends to computer communications, packaged business systems for large distributed companies and facilities management at its head office computer centre in London, Ontario. Sales offices are located in Toronto, Calgary, Philadelphia, Los Angeles and London, England.

EXPERIENCE

Cableshare's first NAPLPS experience was in developing over-the-air broadcast software for TVOntario in 1979. From this early base, it developed a NAPLPS frame-creation unit, interactive touchscreen mall information systems, and interactive videodisc/videotex point-of-sale terminals.

PRODUCTS AND SERVICES

The heart of all of Cableshare's videotex systems is the NAPLPS frame-creation terminal, the *Picture Painter*. It is a full-function system that allows almost anyone to design and edit videotex graphics. It has four distinct advantages:

- It supports full NAPLPS.
- It operates on a range of computers: DEC Rainbow, IBM PC, PDP 11-23 and ICL PC.
- It has interchangeable decoders to support existing systems (Microtel, Electrohome, Norpak or AT&T based).
- It has two complete operation modes: keyboard for production environments and graphic tablet with full command menu overlay.

The low-cost Picture Painter also comes with:

- Extra editing functions
- Easy-to-use palette
- Single-screen operation
- 14 type fonts
- Automatic filing

In addition to being a frame-creation terminal, the same system is the basic authoring system for Cableshare's touchscreen mall information system and point-of-sale interactive videodisc/videotex terminals.

Touch n' Shop operates in two ways. The first uses touchscreen terminals: all users have to do is simply touch the topic they would like to learn about. Instantly, a full audio/video presentation or colour graphic frame is shown. Another touch of the finger and the process continues. Whether you are selling a car or explaining the ins and outs of a new income tax form, if your message changes a new computer graphic is inserted, and your presentation is instantly updated.

The second way Touch n'Shop communicates is with large-screen billboards. These display hard-hitting billboard-type messages to passers-by, with either full colour computer graphics or live video.

Typical applications include:

Shopping Centres: Touch n' Shop was first installed in 1981 as a shoppers' information system. Consumers view advertising messages on large-screen projection units and access specific information on store specials, mall promotions and services through touch-sensitive terminals. Other special features do more than just inform shoppers. A gift guide, for example, actually helps the customer shop.

Other features of the system allow remote updating of the database, optional on-line printers for coupons or receipts, and custom action pages for special local applications.

Point-of-Sale: In December 1982, Touch n' Shop was installed in a future branch location of a large national bank as a customer service terminal. Customers select topics of interest, such as types of accounts, loans, mortgage rates and investment options, and are shown full audio-visual presentations. By inserting a bank card into a credit card reader and entering a personal identification number through a soft keyboard drawn on the touchscreen terminal, consumers can receive a printout of the balance and recent activity on their savings account.

The customer service terminal is also being used by the auto industry to help sell cars. The potential exists to allow customers to put their own option package together and have it confirmed with list prices from a built-in printer.

Benefits of Touch n' Shop include:

- Easy to use
- Flexible
- Fast
- Simple authoring systems
- Cost effective

FOR MORE INFORMATION

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20 Enterprise Drive
P.O. Box 5880
London, Ontario
Canada
N6A 4L6
Attn: George McCabe
Tel: (519) 686-2900
Telex: 064-5693

CANADIAN CAPTIONING DEVELOPMENT AGENCY INC.

COMPANY OVERVIEW

The Canadian Captioning Development Agency Inc. (CCDA) is a non-profit charitable organization established and incorporated in 1981 at the request of the federal Department of Communications to provide captioning (sub-titling of the television audio) for Canadian television programming.

The Agency's principal mandate is to prepare and provide captions to broadcasters and advertisers in a format suitable for broadcast to the homes of deaf and hard-of-hearing people to enable them to understand and enjoy television fully along with their hearing counterparts.

The captions need not be, but normally are, provided in a "closed" format (i.e. invisible without the use of a decoder) so as to not distract the larger, general television audience.

Production centres are in Toronto and Montreal. Total staff numbers approximately 25 persons.

EXPERIENCE

Key customers to date are broadcasters and advertisers.

The Canadian Broadcasting Corporation (CBC) has contracted with CCDA for the provision of five hours of captioned programming weekly on each of its television networks, French and English. About two hours per week of the Canadian programming schedule of the CTV Television Network is currently captioned by CCDA.

Within the advertising community, approximately 110 companies in Canada have made it corporate policy to closed-caption all their television commercials.

The key application is making television more intelligible and enjoyable for Canada's 1.5 million hearing-impaired people. This entails not only the provision of text but very shortly, graphics. Since CCDA's system is NAPLPS-based, deaf and hard-of-hearing people who have a NAPLPS-type decoder will be able to see on their home TV screens, graphics to denote important off-camera actions, such as the knocking of a door, the barking of a dog, the ringing of a telephone, etc. This graphic material will supplant or reinforce the presentation of captions in alpha-numeric form, to create a more dynamic, colourful and complete communication system for the hearing-impaired.

PRODUCTS AND SERVICES

Working from a transcript of a given television program, CCDA's editors prepare a "captioned script" which essentially is an edited version appropriate to a required reading level. The captions are then allocated and timed to appear and disappear at the proper place and timed to match the program video. Finally, the captions are digitally put onto a computer magnetic disk ready for encoding by the broadcaster either directly into the vertical blanking interval (which is normally invisible) portion of the television signal or onto a new master videotape for airing.

Commercials are normally captioned in the same manner with the exception that they are prepared verbatim rather than edited, as sponsors are concerned about the exactness of the translation from the spoken to the written message.

In addition to the basic product and service described above, CCDA provides the following services:

- Preparation of program transcripts.
- Subsequent alterations to the positioning or timing of captions.
- Captioning at different language levels.
- Captioning in the alternative official language.
- Duplication of captioning disks.

FUTURE DIRECTIONS/ TARGET MARKETS

CCDA is vitally interested in the development of alternate applications and uses of captions beyond, but not excluding, serving the hearing-impaired.

Examples of such other uses which are currently being investigated include:

- Assisting in the learning of either of Canada's two official languages, by captioning in the language opposite to the program audio.
- Providing written reinforcement in the learning of special skills or tasks (i.e. in-house training).
- Enabling or supporting comprehension of the program audio in public places or at exhibits where distance or a noisy environment make such comprehension difficult or impossible.
- Assisting new Canadians in learning to read and speak either French or English.
- Serving multicultural television programming interests.

New directions include increased use and experimentation of NAPLPS-based graphics to supplant or to reinforce purely textual information, and experimentation with captioning in different colours, character sizes and display formats.

FOR MORE INFORMATION

Canadian Captioning
Development Agency
95 Barber Greene Rd., Suite 208
Don Mills, Ontario
Canada
M3C 3E9
Tel: (416) 445-7022

ccda
acds

COMPANY OVERVIEW

CEMCORP (Canadian Educational Microprocessor Corporation) was established in 1981. CEMCORP was formed to design, manufacture and supply a standard family of microprocessor computers suitable to the long-term needs of Canadian schools.

EXPERIENCE

The specifications of the CEMCORP family of products coincide with the Ontario government's specifications. CEMCORP has been awarded a $10 million contract to deliver prototype and production units to school boards throughout the province.

PRODUCTS AND SERVICES

CEMCORP offers a family of computers which integrates into a network in which the resources of any node may be shared in various ways by any other node. Thus, an aggregate of relatively low-cost units may be integrated into an extremely powerful system.

The CEMCORP network initially contains two basic units:

- The *ICON* is a low-cost student workstation which includes a display unit, keyboard and 256K memory, using an INTEL 80186, 16-bit processing unit. This machine may operate as a completely self-contained computer (with a one-megabyte diskette) or as a node in a low-cost network, the iNet.
- The *Lexicon* is a fileserver that fulfils two functions. It provides access to mass storage devices (floppy or hard disks) and the resources of the operating system (QNX). It also provides flexible peripheral expansion capability by supporting a system expansion bus. The Lexicon maintains the network file-structure and provides a high-speed network interface to the ICON workstations.

CEMCORP's workstations incorporate a standard user interface. An interface for trackball is provided to support graphical and pointer interaction. Speech synthesis output is included to provide voice-guided interaction within programs and HELP functions. The keyboard supplied is English-French compatible and incorporates a HELP key. Support of the NAPLPS standard specification is also provided.

CEMCORP offers the Waterloo Systems Languages developed at the University of Waterloo, Ontario. Various high-level languages are implemented by means of interpretive language processors. The initial package includes BASIC, PASCAL, FORTRAN, COBOL, and APL. Also supported are C and Logo.

CEMCORP will offer the QNX operating system as its standard educational operating system. QNX is a UNIX look-alike system written in C language. CEMCORP will enhance and extend the QNX operating system user interface to allow easier interaction by naive users and to promote efficiency of application programs. As well, it will give attention to a graphics protocol that enforces program portability between machines of varying graphics potential.

The CEMCORP product has a fundamental advantage in its network structure. Unlike the personal computer market, or perhaps even the small business market, the educational market is not one of individual sales. The use of a number of computers in the classroom requires standardization and compatibility. This can only be met by introducing higher level software than is common on personal computers.

FUTURE DIRECTIONS/ TARGET MARKETS

Scheduled for mid-1984, the third unit of CEMCORP's product line, the *Advanced Student Microcomputer*, will be a high-performance workstation which does not normally operate as a stand-alone computer, but uses the mass storage facilities of the LEXICON fileserver through the high-speed iNet interface. The Advanced Student Microcomputer will include a 32-bit processing unit which supports demand-paged virtual memory operation.

Application software and courseware written for the ICON will be able to be migrated to the 32-bit processing unit. The CEMCORP computer is the first North American hardware and software system designed exclusively for the educational market.

FOR MORE INFORMATION

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(Canadian Educational
Microprocessor Corporation)
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Dons Mills, Ontario
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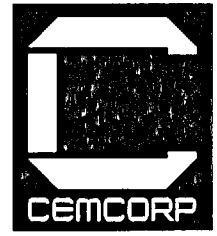

DELPHICRAFT INC.

COMPANY OVERVIEW

Delphicraft Inc. is a small company whose major concerns are the development and marketing of content for videotex databases. Formed in 1982, the company brings together the talents of its principals in the areas of marketing and videotex services. President Collin Craig had 14 years experience in marketing consumer goods and services before joining Delphicraft, and Neil Naft, Director of Operations, worked on the Canadian government's videotex program from 1979 to 1982, directing the public awareness program in Ontario, liaising with the industry and conducting research into potential services.

EXPERIENCE

Database Design:

- **TVQ** — a fully searchable database designed to provide easily accessible detailed information about the film industry.
- **SportsFax** — a detailed statistical sports information package for the dedicated fan. This is an advertiser-supported database which can operate in public locations.

Market Studies:

- Mall Information Systems in Canada, prepared for a major U.S. corporation.
- Public Access Information Systems in North America, prepared for a major U.S. corporation.
- The Market Potential for Legal Information on North American Videotex Databases, prepared for Concord Publishing.

PRODUCTS AND SERVICES

A growing number of database packages for distribution are available or can be designed to order. These include:

- Entertainment
- Sports
- Direct marketing
- Education
- Children's stories

Consulting services to develop videotex applications for clients focus on six major areas:

- **Analysis of Opportunity:** Delphicraft analyses all aspects of the information chain, including the needs of information providers and information users.
- **System Configuration:** Delphicraft analyses clients' requirements and determines the degree to which the system should be centralized, the extent of local processing required, the level of interactivity and the types of peripherals and interfaces needed for the most effective videotex system.
- **Database Design:** Delphicraft analyses many factors in constructing a database, including the various sources of information and the orientation of the users of the system.
- **Page Creation:** Under Delphicraft's supervision and working to its strict guidelines, pages will be produced by the artists whose talents can best be adapted to a client's needs.
- **System Management:** Delphicraft will examine the many factors which must be taken into consideration as the traditional business "make or buy" analysis is applied to this new technology.
- **Marketing the System:** The objective is to get the target audience to use the new system, and to use it properly, changing habitual ways of obtaining and using information. To accomplish this objective, Delphicraft will work with its clients to develop and execute a full marketing plan, with an appropriate budget.

FUTURE DIRECTIONS/ TARGET MARKETS

Over the next two years Delphicraft will become established as an electronic publishing house, syndicating databases to systems around the world.

FOR MORE INFORMATION

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COMPANY OVERVIEW

Established in 1973, DMR and Associates is a management consulting firm employing over 550 professionals in Canada with subsidiaries in the United States and Australia. DMR specializes in information management, providing its clients with services in strategic planning, management consulting, education, systems development and technical support. To support its clients with full objectivity, DMR has no products, hardware or software, and maintains complete independence from all suppliers.

EXPERIENCE

The following are examples of projects conducted by DMR, or by its consultants with previous employers:

- Conducted a videotex market opportunity study for a major international vendor of distributed data processing and local area network equipment, with resulting product integration strategy.
- Advised a transit information systems vendor on videotex integration possibilities.
- Developed and delivered videotex and teletext consulting and education programs for a major videotex supplier.
- Consulted to a South American country on a national videotex system for delivery of social services information.
- Provided custom education for major publishing organizations and government bodies related to videotex applications and implementation needs.

PRODUCTS AND SERVICES

DMR's videotex-related consulting and implementation services include:

- Market requirements planning
- Product planning and functional design
- Application feasibility studies
- Implementation and project management services
- System integration services

DMR consultants operate in all major segments of the information provider community, including:

- Finance and insurance
- Manufacturing and distribution
- Government
- Education
- Medicine
- Services

DMR supports information providers in the identification of videotex market opportunities and in the design and implementation of the systems required to meet opportunities effectively.

FUTURE DIRECTIONS/ TARGET MARKETS

In providing services to the videotex industry, DMR focuses on integrating videotex with new and existing systems technologies to create powerful tools for information management.

Its primary focus is related to planning, developing and implementing effective multi-purpose personal workstations.

FOR MORE INFORMATION

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Los Angeles, California, 90067
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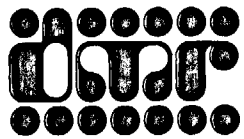
Attn: Italo Petreccia
Managing Partner
Tel: (213) 551-1671

57 River Street
Wellesley, MA, 02181
U.S.A.
Attn: George Kassabgi
Tel: (617) 237-0087



DOUSERV TELECOM INC.

COMPANY OVERVIEW

Douserv Telecom Inc. is a leader in the consulting and technical services field. It provides its customers with a multidisciplinary team, experienced in fields such as conventional and data telecommunications and office automation. From its beginning, hospitals, governments, national and international organizations have relied on DTI to analyse, research, recommend and manage their major communications undertakings.

Founded in 1974 by G. Raymond Doucet, P. Eng., as Doucet & Associates Consulting Ltd., it evolved to establish offices in several Canadian cities and in the United States. Incorporated in 1980 as Douserv Group Inc., the parent company and associated firms are well established in the field of communications and related electronic systems. Douserv Telecom Inc. is the associated firm of the group responsible for voice, data and telematique projects.

EXPERIENCE

The competence of its consultants, recognized by governments, telephone companies and other utility companies, earned DTI such assignments as:

- All aspects of telecommunications projects for Saudi Arabia's King Abdulaziz University, including telephone and cable distribution systems, radio paging and mobile radio communications, the loudspeaker paging system, closed-circuit television facilities, and design of the data communications network and underground cable plant.
- The engineering and management of the James Bay Development Corporation's telecommunications services, including mobile radio communications, television reception by satellite and broadcasting, and telemetry.
- The study of Sherbrooke University's telecommunications requirements.
- The design and engineering for the Inter-Vision consortium of very high-capacity microwave systems.
- The planning and design of the telecommunications network for the Quebec Labour, Health and Safety Commission.
- Technical assistance and network management for Microbec Inc., which distributes television signals from the U.S. throughout eastern Quebec by means of microwave transmission.

In the field of *videotex applications*, DTI is responsible for the detailed definition, engineering and project management of a combined teletext/videotex system in the Montreal Convention Centre to provide on-line registration and interactive information. The project consists of implementing an innovative concept to provide a fully computerized NAPLPS system for managing the convention centre.

The on-line registration segment of the project is based on a Telidon teletext system which provides:

- Orientation for visitors to locate events of interest to them.
- Advertising addressed to specific interest groups.
- Convention centre services.
- Advertising of complementary convention programs.
- Visual support to security programs in case of emergency.

The interactive information segment is based on a NAPLPS videotex system which provides information within the convention centre and to convention hotels concerning:

- Current events and services available in the convention centre.
- Tourist information about Montreal, the Province of Quebec and Canada.

The database is compatible with other interactive Telidon terminals throughout the world.

PRODUCTS AND SERVICES

DTI provides services similar to those provided in the Montreal Convention Centre, including:

- Complete consulting.
- Engineering and managing services.
- Advisory services.

FOR MORE INFORMATION

Through its Douserv Group affiliations, DTI has offices in most major cities of eastern Canada and in the United States under the name of Douserv Consulting Corporation, with its head office in Dallas, Texas.

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Capitol Center, Suite 1930
Montreal, Quebec
Canada
H3B 4G7
Tel: (514) 866-5836
Telex: 055-61315

9629 Wendell Road
Dallas, Texas, 75243
U.S.A.
Tel: (214) 341-9495

COMPANY OVERVIEW

Throughout its 75-year history, Electrohome has been at the leading edge in audio and video display technology.

For the past 30 years, that commitment to innovation has been expanded to computer-related products with considerable success. For example, more than one million Electrohome monitors have been sold worldwide.

That commitment has brought Electrohome to the frontier of technology in varied fields such as monochrome and colour data projection, satellite receivers and arcade games.

Because of its record of performance in advanced research and development, in 1978 the Canadian government selected Electrohome to participate in developing the NAPLPS videotex system.

Its head start in videotex led to high-resolution Electrohome terminals matched to the full potential of NAPLPS and to the most demanding standards of colour graphics display.

As a result, Electrohome has become a North American leader in designing, manufacturing and marketing videotex decoders, integrated terminals and colour graphics workstations.

EXPERIENCE

Electrohome Limited is a multi-divisional company with annual sales in the $200 million range. Two thousand employees work in one million square feet of engineering, manufacturing and office space in Kitchener, Ontario, and Morristown, Tennessee.

Electrohome markets products throughout North America as well as in 19 off-shore countries.

PRODUCTS AND SERVICES

The *TV Set Top Terminal* consists of a separate decoder and remote keyboard unit. It can be used with a standard home television set to display NAPLPS encoded videotex information received over normal telephone lines.

The *High Performance Colour Graphics Terminal* is matched to the full potential of NAPLPS. It runs on any computer. Pictures are described in code and drawn by the terminal. Its high resolution produces fine details and captures subtle colours. Even a low-cost Electrohome TV set-top decoder displays graphics with no information loss. Coupled with applications software, it becomes the ideal tool for:

- High-level graphics creation
- Engineering design
- Process control
- Computer-aided learning
- Many other applications

Electrohome has also developed a versatile approach to colour graphics software which can be readily embodied in other manufacturers' products and systems. Its advanced research and development resources enable it to provide consulting services to OEM customers who are developing their own products. Because Electrohome participates in developing graphics and standards, it can assist in determining the NAPLPS protocol to the latest revisions for a variety of microprocessors.

FOR MORE INFORMATION

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Canada
N2G 4J6

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ELECTROHOME

FAXTEL INFORMATION SYSTEMS LIMITED

COMPANY OVERVIEW

Faxtel Information Systems began business in July 1981 with the goal of launching a financial and business videotex service with the most economical and functional colour graphics software for statistical interpretation. Currently, Faxtel employs 12 people and has sales in excess of $1 million. Faxtel chose to use NAPLPS as a protocol because of its rapidly growing support, its graphic superiority and telecommunications efficiency. Faxtel's direction since the beginning has been business information in easy-to-use graphic presentation form.

MARKETFAX, Faxtel's first service, is used by 100 security firms, investment funds, institutions and investment managers for graphing and analysing stock market trends on the New York, American, Vancouver, Toronto and commodity exchanges. Primarily its market focus has been Toronto and Montreal.

EXPERIENCE

MARKETFAX is a proven sales aid to security brokers and an invaluable timing device for investment institutions.

In 1982 Statistics Canada representatives passed by Faxtel's booth at a show and, immediately impressed by the MARKETFAX system, asked if something similar could be done for Statistics Canada information. Shortly thereafter, Statistics Canada and Faxtel announced *TELICHART*, a NAPLPS graphic service of Canadian statistical information which includes statistics on subjects useful to business such as:

- Economics
- Labour
- Social data
- Energy
- Manufacturing
- Trade
- Transportation, and
- Population.

Many existing MARKETFAX clients use TELICHART. In addition, TELICHART is attracting media use. For example, the business section of the Toronto Star newspaper regularly uses charts from TELICHART for special articles and day-to-day features.

PRODUCTS AND SERVICES

Faxtel licenses its service and software to companies wishing to operate a business service or for a corporation's internal use to display its own data in meaningful colour graphics. Faxtel also sells subscriptions to its services on its own host computer in Toronto as well as overseas. Faxtel's service is now compatible with IBM personal computers with the purchase of a software disk. Otherwise, terminals can be purchased through Faxtel. Faxtel will implement complete turnkey operations on request for business applications.

FUTURE DIRECTIONS/ TARGET MARKETS

Faxtel is currently working on graphics for use in corporate presentations. It has used computer graphics instead of film or slides with great success for a number of national sales meetings for group product managers. Current clients include First Choice Pay TV, Nestle's Food, Croydon Furniture, Pillsbury Foods and the Ontario government. The need for better presentations and Faxtel's experience in data presentation services has led it naturally into this field. MARKETFAX and TELICHART are the main focus, with growth to be achieved by more data, better software and expanding its market base, primarily in the U.S. and Europe, during the next year.

FOR MORE INFORMATION

Faxtel Information Systems Ltd.
12 Sheppard Street, Suite 500
Toronto, Ontario
Canada
M5H 3A1
Attn: Sam Melamed
Tel: (416) 365-1899

MARKETFAX
Attn: J. McLauchlan
Tel: (416) 365-1728

COMPANY OVERVIEW

Formic Videotex Systems Inc. is actively involved in the development of videotex software and systems based on a variety of microcomputers. Formic specializes in providing a full spectrum of videotex/teletext products adapted to today's growing microcomputer environment. The aim is to provide customers with a complete and reliable stand-alone videotex/teletext system at an affordable price.

Formic's involvement in many NAPLPS projects in Canada has given it extensive experience in a variety of teletext/videotex software products, with an emphasis on user-friendliness and full functionality.

Formic's unique approach to the design of software systems means that with only one microcomputer you can now create your pages, manage a database for direct or modem access, and control every function of your videotex system in a stand-alone mode. Formic can offer a variety of videotex/teletext/cable TV software systems, or can design a system especially suited to clients' requirements.

EXPERIENCE

Formic Videotex Systems has extensive experience with the Canadian Department of Communications, the Ministry of Education of Quebec, Systemhouse Ltd., the Ontario Federation for the Cerebral Palsied, the University of Montreal and Quebec Hydro.

PRODUCTS AND SERVICES

Formic can supply the package software on read only memory (ROM) cards, or complete turnkey systems based on popular microcomputers (Apple, IBM PC) designed to handle the specific needs of videotex/teletext applications. These units are independent from the decoding or encoding system, and can therefore be used with a variety of encoder systems or as a cable head-end in a cable TV situation. As well, these microsystems can be used for regular business applications.

- **Page Creation System**
  Formic's system provides interactive page creation based on the NAPLPS and NABTS protocols. It can be used with any decoder system, and allows the user to create, edit and recall graphics easily and instantly. This system is compatible with any page creation and database management system. Its two-screen design allows the interactive choice of functions and attributes from one menu screen, and the visualization of pages on the other. It permits easy storage.
- **Stand-alone teletext/cable TV database**
  The storage capacity of this system is not limited by the disc system of the microcomputer. The Formic system allows the user to manage every function of the database easily, as well as create schedules for the presentation of different sets of pages. The database terminal can also be programmed to control from four to eight decoders (with the standard equipment) in a direct or modem access mode. This system works at multiple transmission speeds while still controlling the quality of the information it is sending.
- **BASITEL/NAPLPS programming software**
  BASITEL is a microcomputer-based programming language that allows you to produce fully interactive videotex modules. BASITEL widens the videotex horizons by combining the NAPLPS superb graphic capabilities with the power and ease-of-use of the microcomputer. BASITEL has great potential for anyone interested in the production of automatic page creation modules, as well as many videotex educational and training applications. BASITEL can also be used to run Formic's Business Graphics package that creates bar charts, pie charts, line charts and histograms.

FUTURE DIRECTIONS/ TARGET MARKETS

Formic aims at always producing a more complete videotex system based on cost-effective software packages well adapted to its customers' needs. It intends to design NAPLPS systems fully based on the microcomputer capabilities to eliminate the need for expensive large computer systems dedicated only to videotex. Often a microcomputer equipped with the Formic videotex software could respond reliably to your videotex needs.

FOR MORE INFORMATION

Formic Videotex Systems Inc.
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Montreal, Quebec
Canada
H2P 2H4
Attn: Claude Pineault
Tel: (514) 384-2655

FORMIC

FULCRUM TECHNOLOGIES INC.

COMPANY OVERVIEW

Fulcrum Technologies markets Canadian high technology products around the world.

Company principals have held senior technical and management positions in a number of corporations, and have specific expertise in all aspects of electronic information publishing.

Fulcrum monitors developments throughout the industry to identify products that combine technical excellence with the potential for wide application. Working with the original creators, Fulcrum provides strategic and technical guidance together with the product management and marketing expertise required to achieve this potential.

Fulcrum has selected the FBN NAPLPS software decoder as its first product offering to the videotex and computer graphics industries.

EXPERIENCE

The professional staff of Fulcrum have worked together since 1976, and have assumed project management responsibilities for a wide variety of assignments. In addition to a number of turnkey mini and microcomputer information processing and analysis systems, key projects include:

- The development of specialized portable display terminal hardware and software.
- The design and implementation of highly sophisticated textual information retrieval systems used across North America.
- The specification of the control software for the full frame digital video picture processing unit now in use at NASA for real time video processing from the space shuttle.
- The overall project responsibility for design and development of a 16-bit commercial microcomputer system.
- The overall project responsibility for the development of a cable-television-based telesoftware delivery system.

PRODUCTS AND SERVICES

FBN NAPLPS is Fulcrum's product entry in the computer graphics/videotex field. This software resides in a personal computer and implements full NAPLPS display capability on an integral display screen.

The initial version of this program operates on the IBM Personal Computer. Although the colour graphics capability of the IBM Colour/Graphics Adaptor is quite limited, this software produces a highly readable, distinct display for most current NAPLPS-based information services. FBN NAPLPS emphasizes readability of both text and geometric information.

As an end-user product, FBN NAPLPS includes a terminal communications package allowing access to NAPLPS-format information using standard modems. The entire program requires less than 64K bytes.

Fulcrum can also provide the FBN NAPLPS technology directly to hardware manufacturers and systems integrators of personal computers and office workstations. Since the display software is implemented as a virtual device driver, application programs can display graphic images by writing NAPLPS Picture Description Instructions to the NAPLPS driver. FBN NAPLPS capability can thus be packaged on its own or incorporated into other brand name or proprietary products.

FBN NAPLPS was designed with an emphasis on compactness, speed and portability. Particular attention was paid to the requirement for rapid implementation on new generations of hardware.

FUTURE DIRECTIONS/ TARGET MARKETS

Fulcrum believes that the NAPLPS technology can be used as a product building block for markets currently not aware of this technology.

The Fulcrum group has substantial experience in the development of advanced products in textual information retrieval, electronic publishing and micro-electronics. Employed as a standard communications protocol, NAPLPS can combine these separate technologies and open them into new markets of enormous potential.

The identification of specific opportunities is currently underway.

FOR MORE INFORMATION

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K2P 0G5
Attn: Ken Leese
Tel: (613) 238-1761

COMPANY OVERVIEW

Genesis Research Corporation specializes in the production of high-quality NAPLPS graphics. Since its beginning in 1980, the company has concentrated on products for the home and educational markets.

Genesis Research has proceeded on the premise that NAPLPS will only succeed if mass consumer services are developed and offered inexpensively to the public.

EXPERIENCE

The graphics information produced by Genesis Research has been used in major videotex systems across Canada. These include the Grassroots systems in Manitoba and the Vista system in Ontario and Quebec. The international videotex market was entered when Genesis Research became the first information provider signed by the Keycom system in Chicago.

Cable television has also been used extensively by Genesis Research. Winnipeg Videon Incorporated broadcasts entertaining and educational services produced by Genesis Research to its 140,000 subscribers. Cable television systems across the United States receive Genesis Research productions via satellite. This application is rapidly expanding into many other countries.

PRODUCTS AND SERVICES

Genesis Research produces entertaining and educational information for use in homes and schools. A major portion of the information is in the format of children's picture storybooks which are both entertaining and educational. Other information is produced for a children's magazine which includes a variety of entertaining and educational material. These products are used for both one-way cable television and two-way videotex systems.

FUTURE DIRECTIONS/ TARGET MARKETS

The company is rapidly expanding into the United States and many other countries around the world. The information produced by Genesis is distributed over telephone lines, by satellite, through television and other avenues. Even countries which are not primarily English-speaking are planning to use information produced by Genesis Research Corporation.

FOR MORE INFORMATION

Genesis Research Corporation
1036-167 Lombard Avenue
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R3B 0V3
Attn: Gregory Stetski
Tel: (204) 949-1581

genesis
RESEARCH CORPORATION

GENESYS GROUP INC.

COMPANY OVERVIEW

Genesys Group Inc. offers a range of its own GENESYSTEM™ videotex turnkey system, operates videotex database management facilities, develops software for videotex and teletext applications, and designs complete videotex systems.

Founded in 1975 to provide engineering and software professional services, Genesys Group was one of the first firms to contribute to the development of videotex host computer software in Canada. It has continued to build on its videotex and teletext expertise, with the primary objective of developing business applications. In 1979, it was contracted by the Canadian Department of Communications to design the videotex host computer software and develop its major components. The interfaces necessary for games, teleshopping and many other applications were defined by Genesys Group.

EXPERIENCE

Genesys Group operates videotex systems in a wide range of applications, including:

- **Transportation:** Genesys Group implemented and operates the videotex display system being used by OC Transpo, the Regional Transit Authority for Ottawa-Carleton, and uses videotex monitors in major shopping centres and transit points to give riders up-to-the minute bus schedule information. The information is generated dynamically and is updated every minute.
- **Telebanking:** Genesys Group is installing a major videotex telebanking system for Empire of America in Buffalo, New York. The proposed system will include approximately 50 corporate clients and over 300 terminals in public places. Future plans also call for support of a large number of ASCII-type personal computers to introduce home banking to clients.
- **Tourism:** Genesys Group operates a tourism videotex information service in the Ottawa area called InfoVision. Users can instantly obtain information on restaurants, shopping, coming events and things to do in and around Ottawa from terminals in hotel lobbies and other public places.

PRODUCTS AND SERVICES

Videotex: As a software supplier Genesys Group can supply the following business applications:

- Teleshopping
- Telebanking
- Real estate services
- Classified search and find
- Private newsletter and wire services
- Cable feed systems
- Convention centres
- Shopping malls
- Tourist information

These application packages can be delivered either as stand-alone software for DEC hardware or can be integrated into existing application packages on a variety of hardware (IBM, Sperry-Univac, H-P, Perkins-Elmer).

For the corporate office the Genesystem turnkey system provides stand-alone private videotex services, including:

- Messaging
- Management information reporting systems
- Teleconferencing
- Convention centre systems

As a system consultant and service operator, a comprehensive service for large closed-user group systems is also available. The areas include:

- System installation, training and maintenance
- Facilities management

In the area of turnkey systems, Genesys Group's small yet powerful integrated systems are designed to make effective use of the videotex host database management software. These systems, which are based on the powerful and reliable range of DEC systems, can be configured with a variety of disk and central processing combinations to handle the specific needs of the application.

FUTURE DIRECTIONS/ TARGET MARKETS

Genesys Group aims to continue growing in the videotex/teletext industry. It will concentrate its efforts in the U.S. and Canada, with an emphasis on business-oriented applications.

FOR MORE INFORMATION

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3rd Floor
Ottawa, Ontario
Canada
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Telex: 053-4798

COMPANY OVERVIEW

GIPSy Graphics Inc. is a two-year-old NAPLPS computer software production house. It manufactures graphics software packages for industrial and educational use. The software is combined with videotex hardware suitable to the end users' needs and packaged to turnkey systems. These systems range from a stand-alone station to interactive networks of up to 128 terminals.

PRODUCTS AND SERVICES

GIPSy software packages are subsets of, and compatible with the CAN-8 system software. The software operates on the Honeywell DPS6 minicomputers and the Honeywell microsystem 6/10 computers. The GIPSy graphics software meets NAPLPS standard. GIPSy products include:

- **Stand-alone graphics production station** consisting of Honeywell's microsystem 6/10 computer, GIPSy drawing package in combination with various videotex terminals, graphics tablets and output devices including slide production units, transparency production units, paper production units and video projectors.
- Network systems consisting of Honeywell DPS6 minicomputer, GIPSy drawing package and a network of terminals of varying resolution, up to a maximum of 128 terminals simultaneously. Some terminals can be allocated for production stations complete with graphics tablet and any of the peripheral hardware listed above.

FUTURE DIRECTIONS/ TARGET MARKETS

In early 1984 GIPSy will release an automatic *Text Package* and an automatic *Chart Package*, both operational from a terminal keyboard. These packages will permit managers to delegate construction of charts, graphs and text frames to clerical help who will not necessarily be trained in graphic production.

FOR MORE INFORMATION

GIPSy Graphics Inc.
212 King Street Street West, Suite 501
Toronto, Ontario
Canada
M5H 1K5
Attn: Bruce Harron
Tel: (416) 598-1336

GIPSy Graphics Inc.

HOME MANAGEMENT SYSTEMS INC.

COMPANY OVERVIEW

Home Management Systems Inc. was established in Winnipeg in May 1982 to develop content for the emerging videotex industry. One year later, the first system, the *Electronic Gourmet*™ provided 13,000 pages of recipe, menu and wine information to Grassroots subscribers on the Infomart system in Winnipeg, Manitoba.

EXPERIENCE

The distribution network for all Home Management Systems products can be telephone, cable or broadcast. Although HMS products are primarily designed to be implemented in an interactive videotex environment, most can also be adapted to a teletext service. As future home terminals have the logic and storage capability of personal computers, the user interface can be enhanced.

Home Management Systems' experience has shown that the HMS products enhance any videotex service, increasing usage, broadening the user base to include all members of the family, adding subscribers and generating needed advertising revenue.

PRODUCTS AND SERVICES

System Design

HMS products include a unique system design which supports a dynamic search capability, adapting the technology to the way people think, and search for, and relate to information. The user of HMS products is not bound by a rigid hierarchical file structure, with predefined relationships between information.

All HMS products are based on the same design, with pages of text and NAPLPS graphics dynamically generated as required. This provides the videotex system operator with a compatibility across the product line and ensures ease of installation and maintenance.

Sponsorship information is also maintained in a similar dynamic fashion. An electronic mail capability is designed into each product, with HMS providing management of the electronic mail network between users of the system.

Content

The HMS product line focuses on the decision-making, information reference and retrieval needs of the modern home and family. These include information related to:

- Meal planning
- Travel
- Household repairs
- Household hints
- Entertainment

The full Electronic Gourmet™ system provides over 13,000 pages of information on 1,300 recipes, 300 menus, over 3,000 wines and hundreds of helpful tips and suggestions to simplify meal planning and entertainment. An Electronic Gourmet Club™ gives members quick access to:

- An electronic bulletin board
- Assistance from HMS
- Exchanges of messages between club members

Sponsorship

A company becomes a sponsor through the purchase of one or more HMS advertising packages. Each package includes:

- Advertising space on a predetermined number of electronic pages on a system.
- The creation of special sponsor pages.
- The opportunity to make special offers to the users of the system.
- The opportunity to buy additional services to promote products, experiment with direct marketing techniques, and conduct market research to test the impact of new marketing strategies.

Electronic Publishing

HMS also provides an electronic publishing service to adapt existing information or develop new services using the HMS database storage and retrieval system.

FUTURE DIRECTIONS/ TARGET MARKETS

Having created a powerful system to manage and retrieve information in a flexible manner from very large databases, HMS is applying the system design to other content for the home market. At the same time, the network of distributors of HMS products is growing rapidly. By the end of 1984, a series of new electronic information reference systems will be available on most major videotex services in North America.

FOR MORE INFORMATION

Home Management Systems Inc.
61 Sherbrook Street
Winnipeg, Manitoba
Canada
R3C 2B2
Attn: Motria U. Kydon
General Manager
Tel: (204) 774-3731

hms™

COMPANY OVERVIEW

IDON Corporation is the NAPLPS information architect to help you:

- educate and train your people
- identify and define requirements
- design new products, systems and services
- enhance existing products, systems and services
- oversee engineering development and system integration
- monitor system implementation
- evaluate product impact and system operation.

IDON's strengths are its knowledge, its experience and its associates.

IDON's principals are well known and respected in their fields. Herb Bown, the President, is recognized around the world as the "Father of Telidon" while Doug O'Brien created the 'PDI's'. Together, they served as prime architects in the creation of international NAPLPS and NABTS information communication standards.

IDON Corporation is dedicated to the innovative creation and application of information technology and communications standards to improve the methods of information handling in everyday learning and decision making situations.

EXPERIENCE

The principals of IDON Corporation have over seventy years of collective experience resolving communications and information handling problems in the worlds of business, education, government, health and the military. IDON's staff have worked as researchers, software creators, systems analysts and designers. As administrators they have planned and managed projects and programs and directed business corporate development and product sales.

PRODUCTS AND SERVICES

IDON Corporation is a service oriented company:

- providing specialized knowledge and understanding of information technology — through personal consultation, seminars, technical workshops and specialized literature. The principals of IDON are internationally recognized as founding experts in both the technology of videotex and teletext and particularly in NAPLPS, and NABTS. IDON's experience base extends from fundamental research to corporate product development and includes the promotion and strategic negotiation of both national and international communication standards.
- providing a stimulus and a sound framework for new opportunities in the information industry. IDON's unique experience and capabilities and more — its strong will to promote new information technology and standards — can lead to the creation of exciting new products, systems and services through an effective cooperation with all the proponents of the industry. IDON can serve as the entrepreneur in defining the requirements of new applications of information technology, as the architect in their specification and design, as an advisor in overseeing their implementation through the cooperative efforts of others, as the trouble shooter in helping others find their way, or as the consultant in assessing the viability of ventures sought or the impact of opportunities taken.

IDON has the drive, the knowledge and the experience to help others succeed in handling their own particular information challenges.

FUTURE DIRECTIONS/ TARGET MARKETS

IDON Corporation is committed to the cooperative exploitation of business opportunities in information technology.

FOR MORE INFORMATION

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Canada
K1Y 4J8
Tel: (613) 722-8101

IMAGE BASE VIDEOTEX DESIGN INC.

COMPANY OVERVIEW

Image Base Videotex Design Inc. was founded in early 1982 to provide a high level of creative and technical support to the NAPLPS industry. Since its inception, Image Base has been active in areas such as applications development, database management, content preparation as well as page design and creation.

Image Base is composed of a group of highly skilled individuals with extensive backgrounds in graphic design, advertising, computer consulting, public relations and marketing. It is a wholly independent Canadian corporation.

EXPERIENCE

Image Base Videotex Design Inc. has provided service to a wide variety of organizations in both the public and private sectors. Among its clients are:

- Clark & Messenger Human Resource Communications: Image Base provided design, production, consulting and daily management of an employment database.
- The Ministry of the Solicitor General: Image Base wrote, designed and produced an extensive public information package on crime prevention which has been used as both an interactive and a stand-alone display, and has been shown throughout Canada.
- A large resource library involved in creating an international closed-user group database aimed at the design, architecture and construction industries: Image Base is providing consulting, production and management services.

PRODUCTS AND SERVICES

Image Base Videotex Design Inc. offers a broad range of NAPLPS services including:

- Application development
- Database design and management
- Page design and creation
- Consulting
- Copy writing
- Translation - English/French
- Staff training
- Transfer of NAPLPS pages to videotape, 35 mm slide and EPS tape.

For in-house videotex applications, Image Base will work with a client to choose a system configuration that best suits its needs. Once the system is in place, Image Base can provide daily management services or train the client's staff on the most efficient means of creating, implementing and maintaining a videotex database.

FUTURE DIRECTIONS/ TARGET MARKETS

Image Base Videotex Design Inc. will continue to expand its videotex involvement in the coming years, with particular emphasis on business and closed-user group applications of NAPLPS technology. As new applications and services develop, Image Base will continue to provide the high level of support and service needed to ensure the growth of this exciting new industry.

FOR MORE INFORMATION

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Canada
M4K 3V9
Attn: Neil Black or Orest Stanko
Tel: (416) 421-1958

Image Base
Videotex Design Inc.

COMPANY OVERVIEW

Infomart is one of Canada's leading electronic publishers. Through videotex, it provides instant access to useful information and services to mass audiences at affordable prices.

Formed in 1975, Infomart is a partnership of two of Canada's largest publishing and communication companies — Southam Inc. and Torstar Corporation. In Canada, it employs over 200 people, with offices in Toronto, Ottawa and Winnipeg.

In the U.S., Infomart has joined with Times Mirror Videotex Services of Los Angeles to form Videotex/America. This company operates videotex systems in the U.S., where it is Infomart's exclusive agent for videotex software and services.

EXPERIENCE

Infomart has been a major participant in the development of Canada's electronic publishing industry. During the last few years, it has gathered a wealth of experience in all key aspects of this new industry and has played a significant role in establishing NAPLPS's position as one of the world's most accepted videotex technologies.

PRODUCTS AND SERVICES

Infomart is active in all the essential aspects of electronic publishing. It operates systems, develops systems software and creates database content.

System Operation. Infomart's NAPLPS based operations include:

- **Grassroots**: An advanced videotex service for agribusiness and the first commercial NAPLPS system in the world.
- **Cantel**: The Government of Canada's videotex service providing government information through public access terminals across the country.
- **Teleguide**: A major commercial videotex service that provides a comprehensive visitors' guide to Toronto using hundreds of public access terminals throughout the city.
- **Private File Service**: Infomart's database search service for corporate and public sector clients. It is the most sophisticated information-retrieval software package, able to store, search and manage textual data.

Software Development. Advanced electronic publishing systems require specialized computer software to provide the services demanded by the marketplace.

Infomart's experience as a system operator has provided invaluable lessons in what software capabilities are required. The result of this expertise has been the design of Infomart NAPLPS System Software — Version Two. It has been designed from the ground up to be the most effective videotex system available.

The Version Two can support a very high transaction rate to perform update and retrieval functions efficiently. These include on-line links with other computer systems for:

- Electronic messaging
- Reservations
- Teleshopping
- Telebanking
- News wire feeds

The software also allows system operators to optimize the performance of their system based upon their own data traffic balance.

The Version Two comes with a complete package of functions, including security and statistics features to protect the operator's investment and assist in planning the growth of their service.

Creative Services. Infomart's third electronic publishing activity is the provision of complete services for the design and development of NAPLPS databases.

Infomart has large consulting and page creation groups in all three Canadian offices. Using a unique combination of computer and creative skills, Infomart offers information providers a full range of services, including:

- Content selection
- Database design
- Production
- Maintenance
- Updating

FOR MORE INFORMATION

Infomart
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Canada
M4S 3A8
Attn: Tom Ward
Tel: (416) 489-6640
Telex: 0622111

Infomart

INFONORTH COMPUTING INC.

COMPANY OVERVIEW

Infonorth Computing Inc. was incorporated in 1982 to develop videotex information using the NAPLPS standard. Infonorth is developing and marketing a wide range of educational materials which are appropriate for use in universities, schools and businesses. This information is prepared for delivery through telephone and cable system lines or for use on computer systems in single locations.

EXPERIENCE

Laurentian University, a government-funded institution, is an active participant in a major Infonorth project which has been established to deliver educational materials throughout a 250,000 square kilometer area. The Native Studies Department of the University of Sudbury (affiliated with Laurentian) has provided leadership in a project to develop materials about the Fourth World. Content has also been prepared for:

- Safety training in an industrial setting
- Personal fitness and health instruction
- Slide shows

The active participation of Laurentian University, and its ownership of part of the company, provides for quality content and a wide range of expertise.

PRODUCTS AND SERVICES

Infonorth provides educational packages in a wide variety of areas, including:

- Health
- Safety
- Psychology
- Geography
- Sport
- Chemistry
- Business
- Biology
- Statistics
- Environmental studies
- Mathematics

The packages are designed to provide self-paced, self-directed learning. Motivational point systems are provided to encourage the learner. Updates are provided to customers so that users of the information have access to the latest information.

Infonorth provides these packages for use on:

- Full-channel teletext systems
- Videotex systems
- Cable display systems
- Stand-alone computer systems
- Electronic slide systems

Materials can also be obtained for use as standard slides or printed on paper. Most of the material is prepared in both English and French.

Infonorth can provide packages for use on existing computers or it can provide a complete system. Hardware and software are obtained from reliable suppliers at the best possible prices.

FUTURE DIRECTIONS/ TARGET MARKETS

The company is constantly working on the development of materials in new areas, with particular attention to the use of satellite technology. Requests for customized materials are also invited. Representatives for the company will be established in other countries as the market develops.

FOR MORE INFORMATION

Infonorth Computing Inc.
160 Douglas Street West
Sudbury, Ontario
Canada
P3E 1G1
Attn: Dr. Richard R. Danielson
President
Tel: (705) 673-5888

COMPANY OVERVIEW

I.P. Sharp Associates offers the computer industry's most comprehensive range of APL services. Headquartered in Toronto, the company has wholly-owned subsidiaries in many European countries, Australia, the Far East and North America.

I.P. Sharp Associates employs over 600 people worldwide. Revenues in 1982 were in excess of $50 million. Exports account for over 70 percent of the company's business.

EXPERIENCE

Formed in 1964 by Ian Sharp and seven colleagues as a software company, I.P. Sharp Associates has become an international organization offering a variety of computer services.

PRODUCTS AND SERVICES

The Network

Established in 1969, the Sharp APL timesharing service is based on a computer facility which now supports the largest APL timesharing operation in the world. One reason for this success is I.P. Sharp's worldwide communications network. Interfaced to Telenet, Tymnet, Datapac, Datex-P Switchstream 1 and Transpac, this network provides local telephone access to the timesharing service from over 500 cities worldwide.

Software

Sharp APL timesharing customers have access to an extensive library of application software, including packages for:

- Database management
- Project planning and control
- Financial planning and consolidation
- Electronic mail
- Leasing analysis
- Forecasting
- Human resource administration
- Time series analysis and reporting
- Actuarial applications
- Econometric and survey analysis

These packages are powerful, flexible and designed to work together. They can be used easily by people with little or no experience with computer systems.

I.P. Sharp has developed a business graphics package known as *Superplot* which allows naive users to display their data graphically. A variety of computer and videotex terminals can use Superplot to create colour graphics.

Public Databases

I.P. Sharp Associates maintains the world's largest collection of on-line numeric databases - over 100. Users of the company's timesharing service have access to over 30 million time series of public international data, including information related to:

- Economics
- Securities
- Banking
- Finance
- Energy
- Aviation
- Insurance

I.P. Sharp has pioneered the concept of making the great majority of its databases available to users, with no surcharge.

The data may be retrieved, analysed and displayed using a variety of techniques. For those not familiar with APL, I.P. Sharp Associates provides easily learned systems to manipulate and display data. Considerable flexibility in report generating is available, including the ability to plot results as multicolour graphics. For those more familiar with APL or with specific requirements, direct access techniques are also available, allowing them to incorporate data into their own customized system.

The public databases are accessed by a multiplicity of users, including brokerage firms, publishing houses, insurance companies, airlines, governments, manufacturers, consultants, universities, trust companies, retailers, oil companies, libraries and banks.

Consistent methods of accessing data allow users to combine data from a variety of sources into a single application, whether it be to perform market share analysis, forecasting, planning, or simply to report data.

FUTURE DIRECTIONS/ TARGET MARKETS

Already represented in over 20 countries, I.P. Sharp Associates will continue to expand its telecommunications network, as well as its list of databases. In addition, real-time updating of security and commodity exchanges will allow up-to-the-minute accurate information to be viewed by the business analyst. Conversational access to the public databases through the *Infomagic* service (I.P. Sharp's conversational database access system) will mature and become the most popular access method.

FOR MORE INFORMATION

Headquarters Locations

I.P. Sharp Associates Ltd.
Exchange Tower
2 First Canadian Place, Suite 1900
Toronto, Ontario
Canada
M5X 1E3
Tel: (416) 364-5361

I.P. Sharp Associates Inc.
1200 First Federal Plaza
Rochester, N.Y. 14614
U.S.A.
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I.P. Sharp Associates Limited

KEYSTONE EDUCATIONAL DESIGN

COMPANY OVERVIEW

Keystone Educational Design is a core of qualified professionals dedicated to the educational and training applications of videotex. Members of the company have been involved with computer-delivered information since 1980.

Keystone gives attention to the following key areas:

Procedures: Organizing and structuring material covered in a course or training package is an important consideration prior to production. Information must be formatted in such a way that the medium does not interfere with content delivery. Keystone has developed procedures for pre- and post-production which ensure content continuity and facilitate final production.

Scripting: Writing copy for this medium requires an understanding of formal considerations. Content written for a printed publication is invariably unsuitable for a computer-delivered format.

Graphics: Students, trainees and the public will be learning from information that appears on the computer screen. Much of the material absorbed and the interaction that takes place will be dependent on the quality and effectiveness of the visual display. Incorrect use of colour, disorganization of layout, cramped column spacing and confusing imagery may evoke totally misleading concepts.

EXPERIENCE

Keystone's concern with creating comprehensive videotex packages of the highest quality in written and visual content is reflected in the work it has produced, including:

- Feasibility studies
- Research
- Scriptwriting
- Editing
- Imagery development

The finished packages reflect the use of effective communication strategies, including:

- Workable concept
- Concise scripting and structure
- Appropriate graphic imagery
- Organized design and layout
- Defined visual continuity

Keystone has developed public information packages for various departments of the Nova Scotia government. It researched, wrote, designed and implemented the Driver's Quiz and the Consumer Energy Information with Quiz (both on the QUESTEL database).

Content feasibility studies have been done for Sheridan College, Ontario, to assess the potential of using videotape, videodisc and videotex for computer delivery of curricula. Currently the firm is completing Phase 1 of a large in-house package for Counselling Services, Sheridan College. Its involvement includes overall design and continuity, imagery style, structuring, flow charting and production.

PRODUCTS AND SERVICES

Lectures on designing and writing for computer-delivered material have been given to Halifax Regional Libraries, Nova Scotia, and Sheridan College. Published articles include writing for Videotex Canada, August 1983. Keystone is currently writing a book on the subject of design and communication using computer-generated displays.

Keystone has developed and is marketing a unique, interactive 300 screen-page course based on the fundamentals of visual communication. The content is device independent and covers typography, use of colour, image techniques and basic layout principles. A series of exercises reinforces course content while increasing operator speed. Well suited for independent in-house training, Keystone also offers on-site supporting lectures, seminars and workshops if desired.

Services include:

- Feasibility studies
- Content evaluation, pre-production
- Consultation, lectures and workshops:
  - the medium
  - the hardware
  - production procedures
  - writing techniques
  - graphic design, visual communication
- Complete package development from initial concept to final production using strategies outlined above.

FOR MORE INFORMATION

Keystone Educational Design
51 Rainsford Road
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Canada
M4L 3N7

KEYSTONE
EDUCATIONAL DESIGN

COMPANY OVERVIEW

Founded in 1976, Lansdowne Consulting Group develops and markets closed-user NAPLPS systems either on a turnkey basis or as an add-on module to existing systems.

EXPERIENCE

Lansdowne's entry to NAPLPS came as a result of work in support engineering. The complexity of modern defence and electronic systems requires considerable support in the areas of configuration management, reliability/maintainability and integrated logistics support. The design process and the in-service support are aided by integrated electronic support systems with dynamic graphic capabilities. Expanding from the engineering applications, Lansdowne is developing closed-user group applications in the banking and library markets.

PRODUCTS AND SERVICES

Lansdowne effectively acts as a system integrator in the NAPLPS market. Working either with a client or a target market, Lansdowne defines the users' needs, assembles available hardware and software, and then provides an integrated package, including:

- The system itself
- Complete technical and user documentation
- Training packages
- Maintenance plans

Lansdowne has the internal capability for any software required and has arrangements for any custom hardware required. Lansdowne offers the services of:

- Requirements definition
- System design and implementation
- Documentation
- Training
- Page creation
- Full maintenance

Lansdowne can provide a complete system or integrate the videotex application into an existing system.

FUTURE DIRECTIONS/ TARGET MARKETS

Lansdowne is now completing a graphics package which uses the NAPLPS protocol as its prime output driver. This package is designed to provide summary graphics capability to the various banks, trust companies and credit unions using Geac on-line banking systems. It can:

- Provide rapid graphic information to executives and managers
- Be used as an advertising vehicle to the public within branches
- Be used as a marketing tool for presentation graphics either to clients or to outside investors

The package will also serve the Geac library system users, where it will:

- Provide graphical summaries of internal data for executives and managers
- Serve as a communication medium to library users

Under development are two turnkey systems — a project management system and an integrated electronic support system. The project management system will use NAPLPS for management reporting and deliverables control. The electronic support system will use NAPLPS as one of its graphics media in configuration management, documentation and several other applications.

Lansdowne's success in using NAPLPS in closed-user groups has unlocked many potential market areas. Its staff can work with clients to determine applications in:

- Management information
- Marketing
- Advertising
- Presentation graphics

FOR MORE INFORMATION

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Director of Marketing
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Lansdowne

LIMICON

COMPANY OVERVIEW

Limicon is dedicated to developing and marketing low-cost, high-quality NAPLPS graphic software for the business and educational markets. Founded in 1982, Limicon's first system, *TeleCalc II*, was on the market by the end of that year, and was followed in mid-1983 by *GraphEase*. Both systems were enthusiastically accepted by the market, gaining important and influential customers as soon as they were released. Limicon has dealers in the United States, the European Economic Community and Canada who provide training and full system service.

EXPERIENCE

At Videotex '83 in New York, industry experts stated that "Limicon's GraphEase and TeleCalc II systems are one of the highest-quality and lowest-cost NAPLPS graphic creation systems available". This opinion is echoed by several of the leading journals dealing with NAPLPS-related products and industries, and by Limicom customers. Major applications include:

- **Videotex and Teletext Page Creation**
  GraphEase lets you save space when creating pages for videotex or teletext services. Since many videotex and teletext systems limit the maximum page size, and others charge for the storage space used per page, small pages are a must. Information providers have chosen GraphEase over other systems for this reason, and because it is so easy to use.
- **Fabric, Graphic and Interior Design**
  GraphEase is the perfect tool for testing how different combinations of colours affect the appearance of any design. One of the largest wallpaper manufacturers in the world is already using it to save time and effort in selecting colours for its designs. Package designers, fabric designers, interior designers and general graphic designers are enthusiastic about GraphEase's ability to make their work easier and better.
- **Broadcast and Cable Television Graphics**
  GraphEase is an easy and cheap way for anyone to create titles, captions and graphics for use on videotape or other related uses. It is perfect for news shows, sports shows, public announcement billboards, advertising displays, show credits and other graphic or lettered displays.
- **Educational Graphic Workstation**
  GraphEase is an inexpensive NAPLPS graphic creation system. This means that students can learn computer graphic design principles on a fully-compatible commercial system. A number of schools and teachers are using GraphEase to create customized courseware. This has applications for business training courses as well.
- **Business Graphics**
  TeleCalc II creates charts and graphs automatically from VisiCalc files. This makes it perfect for meetings, presentations, speech illustrations, articles or any other occasions where colour charts and graphs are needed.
  No training is needed to use TeleCalc II; all you have to do is enter the VisiCalc file name and the type of chart you want. TeleCalc II does the rest.

PRODUCTS AND SERVICES

As well as TeleCalc II and GraphEase, Limicon is marketing three other products. These are:

- A tree-structure database for free-standing database applications or for testing the pages to be placed on a larger database.
- Telecommunications software that allows the microcomputer on which you run GraphEase and TeleCalc II to communicate with virtually any other computer system.
- An extensive course on Computer Graphic Design principles that will allow artists to create more effective pages.

Limicon also provides a complete self-instruction course, including examples, to help new users learn to use GraphEase quickly and effectively. The course consists of seven lessons and takes only 10 hours to complete. However, the user can begin to create useful graphics after just two lessons.

FUTURE DIRECTIONS/ TARGET MARKETS

Limicon is now developing a number of industry-specific NAPLPS packages.

FOR MORE INFORMATION

Limicon Inc.
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Canada
M4K 2Z1
Tel: (416) 465-4058

COMPANY OVERVIEW

Marconi Baird Inc. is a Canadian-owned and operated information management company specializing in content for use in the videotex system. Its head office is in Toronto.

The company was one of the first in North America to devote most of its resources to videotex, particularly content.

It was the first to:

- Introduce videotex city guides to North America.
- Design corporate in-house staff training applications.
- Use videotex in major economic comparative models between Canada and the United States.

Although Marconi Baird is a small, entrepreneurial corporation, it nevertheless has undertaken more research and development into user trends than any other company in Canada.

This extensive research, which enables it to assist clients to an unusual degree in organizing their information requirements for the videotex environment, has been gathered from participation in three of Canada's major databases during critical field-trial periods. One of the databases, NOVATEX, has enabled Marconi Baird to research the needs of international clients.

Marconi Baird specializes in services to the business community, especially in the areas of banking, finance and tourism, where its experience has been most extensive.

Marconi Baird's background has been firmly planted in the electronic media for over 25 years. It knows how information is best formulated for various groups. It prides itself on the organization of such information (database design) and on the continuing and expanding user acceptance of its years of practical experience in this complex field.

EXPERIENCE

Marconi Baird's clients include:

- The Government of Canada
- The Province of Ontario
- The Royal Bank of Canada
- Thomas Cook Travellers Cheques
- Rothman's of Pall Mall
- The Canadian Federation of Labour
- Bell Canada
- Dylex Limited

These major corporations and governments have chosen Marconi Baird for the wide variety of videotex services it provides. Marconi Baird creates some 6,000 videotex pages in the course of a year.

Its creative output has been chosen for demonstration purposes in London, England, and at Videotex '81 (Toronto), Videotex '82 (New York) and Videotex '83 (New York).

PRODUCTS AND SERVICES

- Consultation
- Database management
- Page creation
- Application design
- Information management
- Innovative in-house specialized materials for training and senior management referencing

FUTURE DIRECTIONS/ TARGET MARKETS

For the past three years, Marconi Baird's emphasis has been on the Canadian market.

Now, with this experience and three field trials behind it, Marconi Baird is ready to serve clients in the United States, Europe and the Pacific Rim countries. In the event of major contractual agreements, Marconi Baird would be willing to investigate establishing an office in your area.

FOR MORE INFORMATION

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Canada
M5H 3A1
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President
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MCLEOD YOUNG WEIR

COMPANY OVERVIEW

McLeod Young Weir Limited, established in 1921, is one of Canada's leading investment firms. As a fully integrated firm, McLeod provides its clients with a complete range of domestic and international investment banking, brokerage, trading and financial advisory services. With approximately 1,200 full-time employees, McLeod has 31 offices across Canada, and offices in New York, London and Zurich. Its head office is in Toronto.

EXPERIENCE

On behalf of corporations and governments, McLeod acts as a managing underwriter or fiscal agent in the formation and placement of capital in the Canadian, United States and European markets. The corporate and government finance departments also serve the firm's clients in areas such as:

- Business valuations
- Project financing
- Mergers and acquisitions
- Computerized financial analysis
- Expert financial testimony

McLeod believes it is recognized by major investment banking firms as having made significant progress in corporate finance in recent years. In particular, McLeod has become recognized as a leader in Canada in the introduction to the marketplace of innovative financing schemes.

PRODUCTS AND SERVICES

McLeod provides a full range of investment dealer services to its institutional and retail clients. These include:

- Retail and institutional debt and equity distribution
- Debt, equity and money market trading, as principal and agent
- Economic futures and commodity advisory services
- Trading
- Foreign exchange risk management
- Portfolio management and evaluation

One of the service departments within McLeod is the Computer Resources Department. This group, staffed by professionals with degress in business, computer science, economics, electrical engineering, English, finance, mathematics, operations research, philosophy and physics, regularly provides a broad range of computer-based services to assist debt and equity investors. These services include:

- Analyses of interest rate trends, interest rate spreads and yield curves
- Portfolio evaluations and strategies
- Performance measurements
- Foreign exchange risk analysis
- Market indices
- Graphs
- Financial statement analysis

McLeod's Computer Resources Department accesses Statistics Canada and Bank of Canada data, as well as independent equity, bond and money market databases which contain both accounting information and trading statistics on a large number of Canadian and U.S. companies. McLeod also provides certain data for the *Bank of Canada Review*.

The Computer Resources Department is currently providing a NAPLPS service called *TechniChart*. This is a display of stock charts for the last 100 days, 100 weeks or 100 months, with prices updated as of the previous day's closing price. This technical analysis charting tool can be used with the available data for Canadian-listed stocks, Financial Futures, McLeod's Preferred Stock and Bond Indices, and U.S. stocks listed on the New York and American Stock Exchanges.

Indicators which may be interactively selected for charting are:

- High, low and closing prices
- Trading volumes
- On-balance volumes
- Moving averages
- Time-weighted moving averages
- Relative strength
- Smoothing
- Oscillator

FOR MORE INFORMATION

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Computer Resources Department
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Canada
M5K 1M2
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McLEOD
YOUNG
WEIR

COMPANY OVERVIEW

The MEP Company (Meteorological and Environmental Planning) has been an innovative leader in meteorology and environmental research since its inception 14 years ago. In this period, the company has developed and implemented a variety of programs in areas such as:

- Weather services
- Air pollution assessment
- Forecast services
- Modelling of atmospheric processes
- Oil spill trajectory prediction
- Iceberg tracking

With a staff of 30 scientists, engineers, forecasters and technicians, MEP produces specialized and customized weather information packages. An in-house computer facility with full hardware and system support is provided by MEP's Data Systems Division with its staff of systems analysts, programmers and operators.

EXPERIENCE

MEP's wide range of expertise in many areas of environmental studies has resulted in its implementing a variety of NAPLPS projects. MEP has pioneered the implementation of systems which produce weather graphics in a NAPLPS-compatible format. The raw data which serve as the input for the final product are derived in large part from the meteorological database stored at MEP which is fed continuously from global meteorological data networks. Computer systems have been written at MEP to analyse these data automatically and then format them into NAPLPS-oriented display pages. As well, programs have been developed which allow technicians under computer guidance to create weather graphics interactively and efficiently for maps whose production cannot be fully automated.

PRODUCTS AND SERVICES

Some of the NAPLPS-related systems developed by MEP include:

- Generation of NAPLPS weather graphics for the Teleguide system in Ontario.
- Creation of weather images for use in the Grassroots system in Manitoba.
- Creation of formatted weather information for daily presentation on the newscast by City TV in Toronto.
- Development of an agriculture-oriented weather database in NAPLPS format for the Viewcom program in California.
- Display of sea state and weather information using NAPLPS for automated weather briefing and forecasts in support of offshore marine activities and the prediction of the trajectories of oil spills off the east coast of Canada.

FUTURE DIRECTIONS/ TARGET MARKETS

The marriage of NAPLPS technology and other MEP systems to create and display computerized graphic images efficiently is a trend which we will pursue. Several of these NAPLPS systems in development are:

- The Aviation Briefing System will allow pilots to conduct their own self-briefing session by displaying at their terminal the weather data for the area relevant to the route they will be taking.
- For marine operations, the predicted wave height for regions ranging from a small lake to the ocean can be mapped out, along with wind information to the same detail. This system can be used to determine optimal routing for a vessel.
- A system for the agricultural community will allow users to interact with the computer to determine their irrigation requirements, develop spraying programs based on forecast weather patterns, etc.
- The two-way communications capability of videotex will offer the interested user access to a continuously updated climatological database. The user will be able to choose the type of information and method of analysis and presentation, and retrieve the processed statistics via text or graphic pages.

FOR MORE INFORMATION

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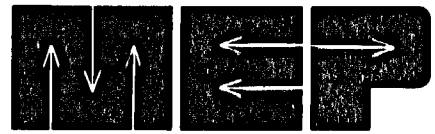
Tlx: 06-966599



MICROSTAR SOFTWARE LTD.

COMPANY OVERVIEW

Microstar Software Ltd., a Canadian-owned and operated company founded in 1983 by Peter and Raymond Jordan, is a leader in North America in software implementation of videotex products on microcomputers. After 10 months of extensive research and development to prove the feasibility of using microcomputers as videotex terminals, Microstar was the first company to market a software videotex decoder. A software approach to decoding was taken to protect against obsolescence and provide the best opportunity to integrate videotex into existing and future information systems. Microstar specializes in the 8086/8088 series of microcomputers and develops products which allow the flexibility of the microcomputer to be used for videotex and other applications without the purchase of specialized single-purpose hardware decoders.

EXPERIENCE

Microstar has extensive experience with the Government of Canada, the Canadian Department of Communications, Statistics Canada, IBM, Infomart, Systemhouse and the University of Guelph.

Major applications include:

- Hardware and software installations in the Library of Parliament in Canada's capital for monitoring legislation and access to information by Senators and Members of Parliament.
- Software installations at the University of Guelph, a major electronic publisher, a farm cooperative and numerous individual farms to promote wider access to agricultural databases with weather, commodities, pesticides, home banking and other information.
- Software installations at major corporations to provide access to informational and financial data such as stock markets.

PRODUCTS AND SERVICES

Microstar entered into the market with the *Microstar Videotex Interpreter (MVI)*, a software decoder which allows the IBM Personal Computer and comparable microcomputers such as Compaq, Columbia Data Products, Ajile and Hyperion to be used as NAPLPS terminals without the need for an external hardware decoder. Included in the decoder is an integral 80-column ASCII terminal to allow access to ASCII as well as videotex services. Additionally, the decoder allows both videotex text and graphics to be captured through hardcopy output in colour or black and white. Only readily available hardware is used, and no single-purpose boards are required. The MVI has been acclaimed as a major advancement in access to videotex information.

Hardcopy output has previously been lacking for videotex. The Microstar Videotex Interpreter allows your personal computer to be used as a NAPLPS terminal without the need for an external hardware decoder. The Microstar product provides three grey scales on the EPSON printer and eight colours on the IDS Prism printer. The software approach to decoding provides protection against obsolescence and provides the greatest opportunity for the integration of videotex into a specific information system.

Microstar provides the following services:

- Custom encoding and decoding of videotex software for microcomputers, minicomputers and main frames
- Custom asynchronous communication packages
- Consulting in videotex applications development

Microstar's knowledge of main frame graphics and database systems as well as videotex provides a unique capability in the industry.

FUTURE DIRECTIONS/ TARGET MARKETS

Microstar is in the forefront of the videotex market. The experience gained by producing software decoders will allow Microstar to lead in the development of innovative communication software targeted towards the business, scientific and agricultural personal computer users.

FOR MORE INFORMATION

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Microstar

COMPANY OVERVIEW

Microtaure Inc. is a microcomputer software house incorporated in Ottawa in 1981. Shortly after its inception, Microtaure narrowed the scope of its work from graphics software in general to strictly NAPLPS applications. At the same time, the policy was adopted to concentrate on both speed and portability of code, thus allowing for efficient implementation on a growing number of 16-bit personal computers.

In bringing videotex capabilities to the microcomputer user, Microtaure has eliminated the need for yet another machine in the home or office. Further, Microtaure's software approach slashes the price of both NAPLPS decoding and page creation.

EXPERIENCE

The speed and flexibility of *TELIgraph* as a page creation tool has resulted in the widespread interest of professional page creators. The variety of input and output modes provided by the microcomputer-based system has proven to be of particular interest to professional graphic artists both within and outside the videotex industry.

The speed and low price of TELIgraph's on-line decoder has generated interest in a number of database developers who recognize the importance of providing their services to microcomputer owners. This possibility may often mean the difference between the viability and non-viability of a proposed database, simply due to the increasingly large number of installed microcomputers in the geographical areas to be served.

PRODUCTS AND SERVICES

The TELIgraph software allows for full use of the NAPLPS standard while maintaining high levels of user-friendliness. This, again, follows Microtaure's philosophy of bringing videotex to all who desire it.

The TELIgraph package combines four menu-driven programs which together cover all aspects of NAPLPS:

- **TELIcomm** is an on-line decoder which allows the microcomputer user to access external NAPLPS databases. Included in the menu are the capacities to upload pages, save downloaded pages to disk, or output the textual information from any page to a printer while on-line.
- **Page Creator** is a fully equipped page-creating or editing tool which can be used for in-house work or for the enhancement/adaptation of pages of information downloaded using TELIcomm. Two screens are used simultaneously for ease of operation.
- **TELIscribe** allows the user to create dynamically redefinable character sets, which are special character fonts or symbol sets custom-designed for particular purposes as defined by the user. The same program is used for the design of redefinable textures. Both of these functions can be uploaded to other NAPLPS terminals.
- **TELIrama** is a slide-show generator which allows the user to assemble sequences of slides of either fixed or variable duration, and output these slides to a variety of printers and plotters. This can be extremely useful for demonstrations or as an explanatory aid.

Other Microtaure NAPLPS software products include:

- An industrial-grade database system which allows for the transmission, storage and retrieval of NAPLPS pages with full database administration built in. This system makes small local databases possible rather than financially unrealistic.
- A business graph generation package which provides the user with a variety of options in terms of the style of graphs generated. Data may be either directly input or retrieved from files created by any one of a number of popular spreadsheet and database software programs available on the market.

FUTURE DIRECTIONS/ TARGET MARKETS

As videotex takes its place beside the telephone and automobile as a mainstay of our day-to-day lifestyle, Microtaure will remain present as a driving force behind progressive research.

The business, educational and entertainment domains are all being addressed by combined teams of specialists and programmers with qualifications in their respective disciplines. The link between all Microtaure products will be the NAPLPS input accepted and output generated.

FOR MORE INFORMATION

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K2A 1T1
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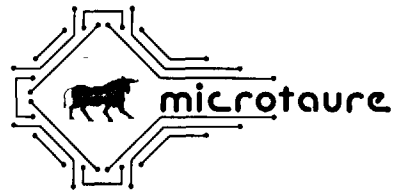

MTX TELECOM SERVICES INC.

COMPANY OVERVIEW

MTX Telecom Services was incorporated on January 15, 1982, as a newly established and wholly-owned subsidiary of the Manitoba Telephone System, a telecommunications company owned by the provincial government of Manitoba. MTX was created to do business outside the boundaries of Manitoba and normally outside the borders of Canada.

MTX personnel have skills and knowledge from planning, designing, installing and managing the Manitoba Telephone System's telecommunications network and support systems.

EXPERIENCE

Examples of Manitoba Telephone System projects include:

- Project Ida — $2.2 million coaxial cable trial to test out various services in a broadband environment. Services included Alarms, Pay TV, Videotex services.
- Project Grassroots — First commercial NAPLPS service in the world (in conjunction with others).
- FAST — Continually monitored Alarm service operating over same paired wire that provides telephone service to a location. First of its kind in the world.
- Hello Central — First Telco commercial electronic voice messaging service.
- Richardson World-wide information network.
- City of Winnipeg Transit Mobile Communication Network.
- The Bay Bridal Registry System.
- Serving of remote locations via satellite technology.
- Design and development of Provincial network supervisory system.
- CAPTURS — design and development in an IBM Series 1 environment of a system that captures traffic, billing information in real time from a Northern Telecom SP-1 toll machine.
- CATV — built and wired major Manitoba towns and cities with a coax-cable network. The southern portion of province's towns are interconnected via over 250 kilometers of coax cable. The linear amplifiers were designed in conjunction with MTS personnel.
- Elie Fibre Optic Trial — $9.6 million trial to interconnect homes in two small communities with Fibre Optic cable to test methodology, feasibility, climatic effects, and services.

PRODUCTS AND SERVICES

MTX provides the following services to the telecommunications industry, corporations, governments, and other consultants working on national and international projects:

- Management and technical consulting, including system designs, feasibility studies, bid evaluation, equipment evaluation/recommendations, operational reviews, evaluation/review of network supervisory systems.
- Project management.
- Engineering design, equipment procurement and installation of telecommunication facilities.
- Training and transfer of technology.

FOR MORE INFORMATION

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R3C 3V6
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Project Manager
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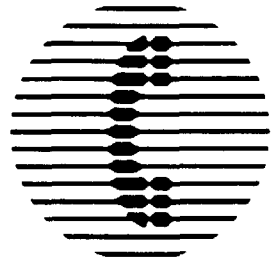
TWX: 610-641-9518
Telex: 07-587637



COMPANY OVERVIEW

NABU has developed and is actively marketing highly cost-effective methods of delivering software services to the home. The NABU *Data Broadcast System* offers teletext capability and a wide range of computer programs through the cable television (CATV) network. By linking special microcomputers with the cable system, NABU is developing a communications network in which cable subscribers are provided with the microcomputers and accesses to a large central database of programs and information.

NABU employs 800 people and had revenues of $60 million in 1983.

EXPERIENCE

NABU evolved from the July 1981 amalgamation of several companies engaged in related aspects of the microcomputer and telecommunications industries, i.e. cable technology and distribution, microcomputer hardware development, CRT screen and keyboard design/manufacturing, software development and retailing of minicomputers.

PRODUCTS AND SERVICES

The central philosophy behind the NABU *Network* is that the CATV plant is the cornerstone of a broadband communications network that includes not only cable, but microwave and satellites as well. The NABU network service is currently available to cable subscribers in Ottawa and Vancouver.

In its one-way mode, the NABU Network offers high-speed transmission of data over unmodified cable plant, microwave and satellite links. A major proven advantage of NABU's cable-delivered data services over telephone-delivered data services is the rapidity of transmission.

Support Systems

The NABU Network incorporates a number of highly developed technological systems which are vital to maintaining a constant flow of new information and programs.

- The **Application Development System** creates content for the NABU Personal Computer. As the range and sophistication of the applications grow, additional systems will be developed, each with facilities to create new applications.
- The **Information Providers System** supplies data periodically for existing applications.
- The **Application Packaging System** assists cable operators to manage network content and distribution. The system segments each application and assigns it to one or more tiers, and uses the tier assignments for billing information.

The NABU Personal Computer has the following features:

- Its architecture is compatible with the newly proposed MSX computer standard in Japan and the U.S.
- Its 64K RAM provides more than enough storage capacity to meet present and future needs.
- The Three Sound Generators give the subscriber full, realistic sounds of all NABU Personal Computer software packages.
- The separate Graphics Processor — with 16K graphics RAM gives the user advanced graphics.
- It has 16 colour graphics capabilities.

System expandability extends the functionality of the NABU Personal Computer with disk drives, printers and monitors, etc.

The **software and information** are grouped into various tiers. Each tier is separately priced and can be aimed at different segments of the subscriber market. Current tiers include:

- Personal Computing Tier: programs such as stock market summaries and analysis, metric conversion, mortage calculations and BASIC.
- NABU Games Tier: a selection of 12 computer games, revised monthly.
- Logo Tier: an easy-to-learn educational language, with support programs that help the novice and children write their own computer programs.
- NABU Lifestyle Software Tier: a selection of titles including information access, video games and educational programs.

FUTURE DIRECTIONS/ TARGET MARKETS

Through every phase, NABU will maintain its stake as world leader in this new information age by its commitment to improve its programming continually. That means introducing unique and varied programs tailored to customers needs and setting the pace in original software and hardware.

FOR MORE INFORMATION

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Sales Director
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NABU

NETWORK VIDEOTEX SYSTEMS INC.

COMPANY OVERVIEW

Network Videotex Systems Inc. distributes content, software and specialized NAPLPS terminal equipment to videotex system operators and other electronic publishing organizations in the United States and Canada.

The company assists system operators in the successful development of their electronic information products by accelerating the growth of subscribers and increasing the revenues from information providers.

Network Videotex Systems is a distributor of videotex content. The Company offers access to a network of valuable content sources for all applications, including high-quality educational and entertainment material. As a service organization to many system operators, Network Videotex Systems can find key content and make it available in the appropriate NAPLPS formats at a fraction of the cost that each operator would otherwise incur.

EXPERIENCE

David Carlisle, the President of Network Videotex Systems, has extensive experience in all aspects of the videotex industry.

As President of Infomart from 1979 to 1983, Mr. Carlisle built that company from start-up to the leading electronic publisher in Canada and one of the major videotex system operators in North America. He pioneered the first two commercial videotex services in North America using the NAPLPS standard format:

- The Grassroots service for agribusiness in western Canada.
- The Teleguide public access service for visitors and residents in Toronto.

PRODUCTS AND SERVICES

Network Videotex Systems distributes content, software and QUICKPEL™, an IBM PC compatible, NAPLPS intelligent decoder board, which has the following features:

General

- Single board, plugs into PC slot.
- Full NAPLPS compatibility, conforms to the Service Reference Model in all of Macros, DRCS, full colour mapping, logical pel, unprotected fields; and exceeds SRM requirements in complete text scaling, splines, automatic clipping on screen boundaries.
- Data I/O through PC Bus.
- Based on Intel 8088 microprocessor, with its own multi-tasking executive for simultaneous execution of NAPLPS decoding and user tasks.

Video

- Resolution of 256x200 pixels, 4-bit memory plane, providing 16 simultaneous colours out of a palette of 4096 total.
- NTSC baseband video output, standard 1 volt p-p, 75 ohm.
- 256x10 status line, allows user interaction outside of main display area.

Software

- IBM PC DOS BIOS module supplied.
- Videotex access program enables the IBM PC to be used as a terminal into a videotex database.
- Address switch selectable, any one of 32 possible addresses, 4 memory locations per device.
- Serial number returned under IBM PC program control, enables ID validation.
- On-board multi-tasking executive, control of task priorities and execution, inter-task communication, each task has four states, running, ready, blocked, dormant, supported tasks include NAPLPS decoding and default session protocol; in this environment, up to 7 additional user-defined tasks can be run; alternatively, the user may choose to override all default tasks to a maximum of 14.
- 16K bytes of RAM for downloadable data and/or programs.
- 256 bytes of R/W non-volatile memory, for storage of user-defined recurrent data.

Mechanical

- Plugs into a single slot in the IBM PC Bus.
- Size (approx.) = 13.2" x 3.9".
- Video phono jack output.

FUTURE DIRECTIONS/ TARGET MARKETS

Mass market penetration of videotex across North America requires a strong infrastructure and network of supporting services. Network Videotex Systems' goal is to fulfil a vital role in that infrastructure as a major distributor of valuable content and software.

FOR MORE INFORMATION

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COMPANY OVERVIEW

Founded in 1975, NORPAK Corporation develops, engineers, manufactures and markets a range of NAPLPS and NABTS hardware products and systems.

NORPAK is a principal developer and major manufacturer of videotex and teletext system hardware, playing a substantial role in the continuing development of videotex in North America and throughout the world. NORPAK products include a variety of decoders, encoders and frame creation systems for videotex and teletext applications. NORPAK designs and manufactures systems for business, educational and audiovisual applications.

In addition to the production of end-user devices, NORPAK is uniquely suited to contract engineering and OEM work. Joint development (with Rockwell International) of VLSI videotex and teletext chip sets and boards will enable NORPAK to offer its expertise in this technology to other consumer electronics firms that wish to incorporate NAPLPS or NABTS into their own product line.

NORPAK also has a history of successful work with the military, in graphics processing and videotex-based information handling systems.

EXPERIENCE

NORPAK decoders and information provider products are compatible with IBM's newly-announced SVS/1 videotex applications software and are in wide use throughout North America, Europe and Australia. Recent activities include agreements to provide products or services to Rockwell International, RCA Service Company, Mitsui & Co. Ltd. and SASK TEL.

PRODUCTS AND SERVICES

Videotex Products

- **Information Provider System (IPS-2)** — a frame creating/editing workstation for creating, editing, showing and recalling NAPLPS-encoded images for use with videotex/teletext systems.
- **Graphics Computer (GC1000)** — a table-top, all-in-one microcomputer which can receive, create and store videotex graphics as well as function as a fully intelligent personal microcomputer or ASCII computer terminal.
- **The MK IV Videotex Decoder** — options include built-in modem, wireless keypad and ASCII keyboard.
- **Electronic Projection System (EPS-1)** — a decoder with added memory; can retrieve information (in videotex page form) either from its own local storage or from a remote database.
- **Micro Data Controller (MDC)** — for use with the MK IV videotex decoder; incorporates an internal, 1200/150 modem, 128K RAM memory, and microprocessor control for local storage and off-loading of videotex or teletext information; stored information may also be edited and organized as a local database or automated display.
- **Video Graphics Generator (VGG)** — a MK IV Videotex Decoder designed for rack mounting; provides RGB/S and preview video output for open-channel broadcast of videotex images.
- **Caption Creation System (CCS-1)** — for the creation of closed captions.
- **Caption Encoding System (CES-1)** — encodes the caption material created by the CCS-1 and inserts it into the VBI of the video program for broadcast.

Services

Computer graphic services provided by NORPAK include: Systems design and implementation, Consultation, Training and seminars, Leasing, Warranty package, and OEM and distributor agreements.

In 1981 NORPAK gained full ownership of Hemton Corporation, a leader in the field of videotex presentation systems. Services offered by NORPAK's Hemton Group include:

- Custom videotex page creation
- An electronic library of graphic images to assist your own page preparation
- Expert page layout and design services
- 35 mm slide presentation

FUTURE DIRECTIONS/ TARGET MARKETS

NORPAK intends to continue its marketing efforts in the U.S., Europe, Australia, the Pacific Rim and the Middle East, as well as in Canada.

Future developments will focus on the development and marketing of low-cost VLSI-based videotex and teletext products and OEM boards and chip sets.

Other future activities will include the development of sound for videotex, and investigation of the concept of "common visual space", or true teleconferencing, using the communications capabilities of NAPLPS.

FOR MORE INFORMATION

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norpak corporation

PERLE SYSTEMS LIMITED

COMPANY OVERVIEW

Perle Systems has been in business since 1976. Since then, it has provided data communications solutions for a wide range of industries and applications. Perle Systems specializes in solving data communications incompatibility problems by means of a family of communications controllers and front-end processors designed and manufactured by Perle Systems.

Perle Systems services the U.S., Canada and Europe from offices in Toronto.

EXPERIENCE

Perle Systems became involved in NAPLPS systems technology when it developed a home banking gateway system to interface a videotex processor with the Bank of Montreal on-line banking system.

PRODUCTS AND SERVICES

Perle Systems delivers fully customized turnkey systems to interface videotex processors with conventional on-line transaction processing systems. Key applications are in the areas of:

- Electronic funds transfer
- Home banking
- Catalogue shopping
- Securities quotations

The videotex interface or gateway systems incorporate the Perle PDS 400 front-end processor and Perle-developed software. They employ a software archiecture developed and widely implemented by Perle for automated switching of teller machine transactions.

The PDS 400 NAPLPS gateway system developed for home banking at the Bank of Montreal provides interface between an Infomart videotex processor supporting the bank's on-line CICS banking system. Home banking customers can perform balance and interim statement enquiries and transfers in real time, and can obtain access via a password security system implemented in the PDS 400. In addition to access security, the PDS 400 software provides full control over NAPLPS page selection in response to customer requests for banking services. The key benefit of the front-end processor approach is that the bank can provide full on-line videotex services with transaction access to its existing banking and credit card application systems without charge.

FUTURE DIRECTIONS/ TARGET MARKETS

Perle Systems sees a rapidly growing market for NAPLPS gateway applications in the coming years and will be actively pursuing this market.

FOR MORE INFORMATION

Perle Systems Limited
360 Tapscott Road
Scarborough, Ontario
Canada
M1B 3C4
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Telex: 065-26123

COMPANY OVERVIEW

Sonoptic Communications is a wholly-owned division of Sonoptic Media & Communications Corporation established in 1980. Sonoptic Communications offers a range of consulting services to those involved in producing, managing or disseminating information. Sonoptic's professionals, specializing in the process of information technology management, have expertise in print and electronic publishing, audiovisual and educational media, office automation and corporate communications. Sonoptic Communications' corporate philosophy calls for strong identification with a client's goals and a willingness to go the extra mile to ensure client satisfaction.

EXPERIENCE

Collectively, Sonoptic Communications' senior consultants have been involved in over 30 videotex start-ups, one national teletext trial, and the first North American NAPLPS videotex trial. Project capitalizations ranged from $25,000 to several millions of dollars. Current clients include:

- Ottawa Info Vision
- Walsh Inc.
- Department of Communications
- Office of the Solicitor General
- Magic Lantern
- Frontenac Institution
- John Howard Society
- Correctional Services of Canada
- Inuit Tapirisat of Canada
- Association for the Advancement of Science in Canada

Sonoptic Communications also provides secretariat services for the Canadian Association for Information Science.

Current videotex projects include the development of an interactive computer-aided learning system having industrial applications, and the documentation, packaging and marketing of a franchise application.

PRODUCTS AND SERVICES

Videotex services include:

- Project management
- Market feasibility analysis
- System specification
- Vendor sourcing
- Content development
- Staff training
- Demonstrations
- Workshops/seminars

FUTURE DIRECTIONS/ TARGET MARKETS

Sonoptic Communications is developing a broad-based service, Information Technology Management, to assist corporations in achieving strategic goals through the use of old and new information technologies. This service will focus on educational and implementational techniques to ensure the orderly development and introduction of information technologies within an organization.

FOR MORE INFORMATION

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Canada
K1Y 4K3
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SONOPTIC COMMUNICATIONS

ST. CLAIR VIDEOTEX DESIGN INC.

COMPANY OVERVIEW

St. Clair Videotex Design Inc. was formed in September 1981 as a joint venture by one of Canada's largest communications enterprises and a leading videotex/teletext hardware manufacturer. St. Clair's business goal is to assist clients in identifying and exploiting opportunities in this new medium by providing effective communications through planning experience and a high standard of creativity.

St. Clair's corporate links offer unique advantages as a supplier of frame design and creation, applications consulting, content development, database services, test programs and strategic planning. St. Clair is independent from any one systems operator, which gives it a unique position of objectivity supported by a broad base of experience. St. Clair's staff is composed of people with extensive expertise in the videotex industry supported by a creative team professionally trained in graphic arts and design as well as a number of associates.

EXPERIENCE

St. Clair Videotex has been involved in the launch and implementation of two major commercial systems in Canada. It has produced information for every other major Canadian system, including advertising content for national advertisers on IRIS, the national teletext service of the Canadian Broadcasting Corporation (CBC), and several U.S. services.

St. Clair Videotex's clients are specifically seeking ways to communicate effectively in the new electronic media in a wide sphere of business and consumer applications. These clients include:

- Canadian and U.S. advertising agencies
- Retailers and manufacturers
- Videotex/teletext systems operators
- Government departments and agencies
- Pharmaceutical companies
- Financial institutions
- Tourist-related operations

PRODUCTS AND SERVICES

St. Clair Videotex's marketing and creative services are based on an advertising background which has been translated into a successful communications strategy for NAPLPS standard videotex and teletext applications. They include the following areas:

Database start-up

- Database formatting, content recommendations, design and testing
- Concept presentations in remote and stand-alone formats
- Creative concept and design and frame creation
- Database design training

Content development

- Feature design and production (including syndicated services)
- Advertiser and "catalogue" packages, sponsorship opportunities and sales strategies
- Graphic image library
- Advertiser and advertising agency presentations
- Pre- and post-testing

Applications

- Product information
- Shopping services and transactions
- Sponsorship packages — sports, theatre, lifestyle
- Institutional material — financial planning, fitness
- Syndicated services — trivia, diet/health, astrology
- Games and quizzes
- Personnel training materials
- Management information databases

Special services

- Micro-based stand-alones
- Videotex/videodisc combinations
- Trade shows/consumer exhibits
- Office and shopping mall directories
- Touchscreen/keypad/keyboard transformations
- Research and access measurement, analysis and recommendations

St. Clair Videotex Design's creative and marketing team provides expert advice as to all relevant applications and ensures that the creative product is suitable and productive.

FOR MORE INFORMATION

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M4V 1M6
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Vice President/
Marketing Manager
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VIDEOTEX DESIGN

OVERVIEW

Statistics Canada, in keeping with its mandate as Canada's central statistical agency, produces a wealth of information on many aspects of Canadian life. It makes this information available to users in many forms: publications, magnetic tape, disk, microfiche, microfilm and computer terminal access via CANSIM.

CANSIM, the Canadian Socio-Economic Information Management System, is Statistics Canada's computerized database and retrieval service. The CANSIM database contains the latest as well as historical statistical information, including 40,000 social and economic time series, a wide variety of social statistics organized in tables with up to nine levels of cross-classification, and large summary tapes from the 1976 and 1981 Canadian censuses.

TELICHART, developed in 1983, is one of the newest CANSIM facilities using NAPLPS technology. It allows dynamic interface between the time series data in CANSIM and the low-cost colour graphics of NAPLPS terminals or compatible personal computers.

EXPERIENCE

Started in 1966, CANSIM's fully computerized central database is accessible by computer terminals using telephone links in Canada and many other countries. Access to the data is provided through a network of commercial contractors or secondary distributors who maintain a minibase of approximately 25,000 of the most popular series. Such historical and current information is used primarily by:

- Governments
- Corporate policy analysts and planners
- Market and investment analysts
- Financial officers
- Academic institutions
- Economists
- Statisticians

PRODUCTS AND SERVICES

TELICHART is a graphic data display system incorporating database and graphics display language using interactive NAPLPS protocol.

TELICHART shows statistics as coloured graphics. The standard display is a line or bar chart. Combinations of lines, shapes, bars and colours can be shown together, either within the same grid or in split-screen fashion. The display can also be rescaled and actual data values listed.

As a tool for analysis, TELICHART applies standard analytical functions such as moving averages, totals, percent changes and indexing. TELICHART will display a graphic with source data as well as computations on the source data. All commands and features are explained in an on-line tutorial.

TELICHART currently accesses a subset of approximately 5,000 series in CANSIM, covering topics such as:

- Economic indicators
- Population statistics
- GNP
- Labour
- Wages
- Employment
- Prices
- Imports/exports
- Food
- Agriculture
- Fuel
- Power
- Mining

Conventional NAPLPS terminals or microcomputers with NAPLPS decoding software can be used with either printers or film recorders to produce hard-copy output.

FUTURE DIRECTIONS/ TARGET MARKETS

In the future, TELICHART will have additional ways to communicate. It will be able to select a wider set of data and the improvements that go with it, such as thematic mapping. It will be able to translate statistical information into more palatable information.

Since TELICHART, as an application of NAPLPS, is new, the possibilities of data expansion are considerable. Additional data from CANSIM will be considered as TELICHART users' requirements are identified.

FOR MORE INFORMATION

CANSIM Division
Statistics Canada
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Canada
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Telex: 053-3585

TELICHART

SYSTEMHOUSE LTD.

COMPANY OVERVIEW

Systemhouse Ltd., incorporated in 1974, is a company dedicated to providing a complete range of services and software for the planning, development, implementation and operation of information systems for both Canadian and international clients. From its headquarters in Ottawa, the company has grown to include 10 other Canadian branch offices. Its wholly-owned American subsidiary, Systemhouse Inc., is headquartered in Washington, D.C., and has offices in Boston, Los Angeles, San Francisco and Chicago.

Since Systemhouse is a highly diversified company, it can deal with requirements for computer systems using a variety of hardware solutions, including IBM, Wang, Hewlett-Packard and Digital Equipment.

Systemhouse has grown to its current strength of 700 professionals primarily because of its success in forming long-term relationships with customers.

Systemhouse has a commitment to remain a leader in the state-of-the-art computer field and provide the bridge between the new technology and the user in this rapidly changing environment.

EXPERIENCE

Systemhouse has been working with videotex since 1979 and has developed a client list of proven NAPLPS installations including:

- University of Alaska: Systemhouse was the system integrator and the prime contractor for the installation of a broadcast teletext distribution system based on NAPLPS and using satellite communications facilities. The system assists in the educational requirements of some 1,500 off-campus students using university-owned Apple II microcomputers.
- NORAD: This system provides generation, storage and communications of graphic and text information installed at the Canadian Forces NORAD facility in North Bay, Ontario. It is designed to meet the data requirements of the Battlestaff and Weather Information Section.
- Citishare: Located in New York, the Citishare contract provided the development of videotex interfaces for databases and products. The service uses NAPLPS. The system integrates Systemhouse-developed application development tools and interactive graphics command language.

Systemhouse has also been involved with a general purpose NAPLPS system using the Hewlett-Packard 3000 (also known as PLPS/3000) allowing a user to access any ASCII program and interact with it through a NAPLPS graphics mode.

PRODUCTS AND SERVICES

The Systemhouse communications expertise located throughout Canada and the U.S. allows the company to provide a full range of videotex services. Systemhouse takes full responsibility for all aspects of hardware acquisition and installation, integrating equipment that best meets the on-site requirements of individual businesses.

The company's experience in building both large and small-scale computer solutions enables Systemhouse to tailor a videotex system to effectively meet individual requirements.

Systemhouse can design and deliver high-quality training courses to ensure a smooth integration of man and machine.

FUTURE DIRECTIONS/ TARGET MARKETS

Systemhouse Ltd. will focus on the development of international capabilities to deliver integrated videotex systems for use by businesses and consumers alike.

Prime areas of concentration will be electronic publishing and financial institutions.

FOR MORE INFORMATION

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Videotex Systems & Services
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Systemhouse

COMPANY OVERVIEW

Talamark Software Computer Systems Ltd., established in 1978, provides information storage-retrieval systems designed to user specifications. Its six senior computer analysts specialize in generalized graphic systems capable of supporting many users simultaneously, thereby significantly reducing access costs.

EXPERIENCE

Canadian clients purchasing Talamark's software include:

- Bell Canada Telephone
- Bell-Northern Research
- Infomart
- NABU Manufacturing Ltd.
- Department of Communications

PRODUCTS AND SERVICES

Talamark's software product is called the *Round Table System* — a database turnkey system developed, distributed and maintained by its staff. The system in unique in Canada because of the many combined features previously found only on individual specialized machines:

- It supports up to 2000 on-line independent users simultaneously.
- It includes software, hardware and communications equipment.
- It includes installation and maintenance of the facility.
- A monthly maintenance charge includes software upgrade and revision.
- It maintains 300,000 information packets (e.g. pages, messages, screens, documents, NAPLPS graphic pictures).
- Information sections are accessed by asking complete sentence questions or by supplying keyword identifiers.
- It instructs through a user-friendly self-HELP section invoked intentionally or when system algorithms determine that the user requires assistance.
- System replies are given in each user's own language.
- Colour decoder-terminals with keyboard are available at low cost. Terminals communicate with the system using a common telephone connection.
- Programs can be developed and tested on the computer-decoder-terminals. Programs can then be stored on the system and retrieved by others. Once retrieved, programs can be executed without being connected by telephone to the system. This saves long-distance and connect charges.
- It provides message addressing to other system-registered users.
- It includes teleconferencing using both pictures (e.g. agenda, graphs, documents) or typed sentences.
- It gives communication support of 300, 1200 and split-speed 1200/150 baud modems on both the switched network and direct-dial.
- Statistics on system activity are gathered daily.
- Delivery of the system is within six months.
- Enhancement quotations are available after mutual consultation.

FUTURE DIRECTIONS/ TARGET MARKETS

Features of the Round Table System will be increased to include:

- Voice response
- Gateway access through the system to popular established databases
- Interfacing to other worldwide communication protocols
- A standby system for client disaster backup-recovery

Its marketing thrust is being applied in Canada and the U.S., with overseas involvement as the marketplace demands.

FOR MORE INFORMATION

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Tel: (613) 521-3846

TALAMARK SYSTEMS

TAYSON INFORMATION TECHNOLOGY INCORPORATED

COMPANY OVERVIEW

Tayson Information Technology Inc. is a full-service videotex company, providing cost-effective, application-oriented NAPLPS systems to the international marketplace from offices in Calgary and Toronto.

EXPERIENCE

It specializes in adapting the technology to meet the users' specific needs, delivering cost-effective, fully functional NAPLPS systems. Tayson is a videotex hardware and microcomputer outlet providing individual hardware or complete turnkey systems.

Tayson operates a commercial page creation service bureau in Calgary, staffed by professional graphic artists specially trained by Tayson's technical staff in using the NAPLPS medium to its maximum potential.

As videotex is a natural augmentation to existing video systems, Tayson also provides video production services and specializes in integrating the two media for optimum information delivery.

The principals of Tayson are professional engineers combining over 20 years of computer application and data communications experience. Over four years of NAPLPS system development have culminated in the ultimate in NAPLPS business systems, providing absolute flexibility in hardware and software design.

PRODUCTS AND SERVICES

- **Consulting Services**
  The diverse business experience of Tayson's principals ensures the development of NAPLPS systems which reflect unparalleled functionality and user-friendliness. Tayson is adept in developing specialized software, turnkey systems, or handling project management.
- **Hardware Suppliers**
  Tayson is an outlet for most manufacturers of NAPLPS equipment and microprocessor computer equipment. With a diversity of product lines, Tayson can provide appropriate hardware configurations tailored to meet your application needs and budget. Being a turnkey supplier ensures prompt delivery and responsible servicing.

FUTURE DIRECTIONS/ TARGET MARKETS

Tayson's unique application approach to NAPLPS system development provides affordable entry into the videotex technology using a standard microprocessor (the IBM Personal or any CP/M compatible processor). The systems developed deliver the ultimate in user-friendliness and functionality:

- Downloading of pages from remote hosts or other systems
- Text editing
- Interactive electronic billboarding
- Database management

Tayson has installed systems across Canada, servicing a variety of information needs (e.g. audio-visual presentations, cable head-ends, electronic billboards).

FOR MORE INFORMATION

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OR

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Scarborough, Ontario
Canada
M1L 2H2
Attn: Peter Richardson
Tel: (416) 288-0550

COMPANY OVERVIEW

For over half a century, the member companies of Telecom Canada, formerly the TransCanada Telephone System, have cooperated to serve Canada's telecommunications needs.

Using the latest in digital switching, fibre optics transmission, and satellite links, Telecom Canada provides customers with nationwide voice, data and image products and services. Telecom Canada operates the world's longest all-digital network, and is in the forefront of the digital revolution sweeping the telecommunications industry.

Telecom Canada's member companies provide a wide range of voice services.

EXPERIENCE

Several Telecom Canada members have conducted research into the market possibilities offered by videotex. For instance, Bell Canada's VISTA trial, conducted under subcontract to Infomart, provided on-demand access to tens of thousands of pages of information supplied by more than 100 information providers.

At the same time, the Manitoba Telephone System has been operating the world's first commercial application of NAPLPS technology through its Grassroots service. Manitoba farmers use Grassroots to obtain a wide variety of agricultural information, including market trends, prices, commodity reports, weather conditions and much more.

Other videotex service trials are under way or have been completed by Alberta Government Telephones, B.C. Tel, Saskatchewan Telecommunications, NBTel, Newfoundland Telephone and Maritime Tel & Tel.

PRODUCTS AND SERVICES

On a national scale, Telecom Canada members have developed an intelligent network concept called *iNet* 2000™. This concept evolved in recognition of the need for more universal access to on-line information and other computer-based services.

The *iNet* 2000 service offers a single point of access to satisfy all business information needs. It creates a user-oriented information environment through features such as:

- Electronic directory of service
- Automatic access to connected hosts
- Integrated electronic messaging
- Individual user profiles recognized by the network
- Summarized billing

iNet 2000 can be entered from virtually any location in the country. Standard alphanumeric or NAPLPS videotex terminals can gain access via Telecom Canada's *Data*pac™ data network, the direct-dial long-distance network and dedicated circuits. Because *iNet* 2000 can access *Data*pac, it can link to other packet-switched data networks in the United States and throughout the world.

The *iNet* 2000 service simplifies the process of gathering, using and communicating information. It offers a full shopping list of vendors and information, eliminating the need for the user to perform many administrative functions.

Since the network recognizes the individual user, its operation can be tailored to suit specific needs and levels of expertise. Managers, executives, salespeople or anyone else requiring simple but effective access to information can make the connection with *iNet* 2000.

FUTURE DIRECTIONS/ TARGET MARKETS

A one-year field trial of the *iNet* 2000 concept was launched in the Canadian marketplace in 1982, and a market trial will begin in 1983, pending regulatory approval. Some of the planned enhancements for the trial include system interworking and shared-screen capability.

Telecom Canada expects approximately 1,500 users from across Canada to participate in the market trial.

FOR MORE INFORMATION

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Canada
K1G 3J4
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Section Manager
Public Relations
Tel: (613) 567-3748

Telecom Canada

TELE-DIRECT (PUBLICATIONS) INC.

COMPANY OVERVIEW

Tele-Direct (Publications) Inc. is a wholly-owned subsidiary of Bell Canada and is the directory publishing and marketing arm of Bell.

Tele-Direct has enjoyed healthy growth and successful diversification and, through affiliations and subsidiaries, is active on three continents.

EXPERIENCE

Tele-Direct has acquired comprehensive experience in NAPLPS videotex. It was among the first active participants in the evolution of the technology and is committed to its future.

A videotex services department was established within the marketing division of the company in 1979. The department had three goals at that time:

- To acquire the skills and experience necessary to use videotex successfully in the commercial area as an electronic publisher.
- To participate in the Bell Canada Vista field trial.
- To position the company to take advantage of any business opportunity related to videotex.

Tele-Direct customers include:

- IBM of Canada
- Bell Canada
- Bell Canada International
- Telecom Canada (TCTS)
- Miracle Foodmart
- The Insurance Institute of Canada
- Cox Cable of San Diego
- The Co-operators
- Encyclopaedia Britannica
- San Francisco Videotex (California)
- Computer Communications Group (CCG)

PRODUCTS AND SERVICES

Tele-Direct began to promote commercial videotex services in 1981. Since then, it has developed and created NAPLPS applications for many major companies.

The services provided by Tele-Direct include:

- **Consultation** — business, technical. Tele-Direct offers a consultation service based on the accumulated knowledge of videotex applications locally and abroad.
- **Training** — page creation, editorial, business. Tele-Direct offers videotex editor training. The candidate will learn all the techniques for page creation, especially the subtleties associated with the graphic and text modes of NAPLPS software. A senior management course will educate executives in all areas of the videotex technology. Included will be practical experience with videotex hardware and software.
- **Application design, conceptualizing, routing.**
- **Page creation** — based upon the client's input, Tele-Direct will create informative videotex pages, and supply a diskette as well as photographs or slides of the completed images. Because of the extreme flexibility of the medium, page content can be modified or updated on very short notice.

FUTURE DIRECTIONS/ TARGET MARKETS

Discussions are under way with several system operators for Tele-Direct, as an information provider, to design an application for electronic yellow pages.

Tele-Direct's long-range target is based on the belief that consumers will require this new technology. Its corporate policy is to position itself eventually to develop wide-scale electronic yellow pages.

FOR MORE INFORMATION

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Scarborough, Ontario
Canada
M1P 4X5
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Assistant Manager
Videotex Services
Tel: (416) 296-4434

COMPANY OVERVIEW

Teleglobe Canada is a Crown corporation with a mandate to bring Canadians affordable and reliable international telecommunications services. Over 200 countries are linked through Teleglobe's network of satellites and undersea cables. Public services that are derived from these advanced telecommunications systems include telephone, telegraph, telex, Globedat, Intelpost, Imarsat, private Satellite Business services, Globetex, Teletex and Novatex.

EXPERIENCE

Early users of *Novatex*, a computerized international business information service, were Canadian Embassies and High Commissions in various parts of the world. These include 15 locations in Europe, 3 in the Far East, 2 in South America and 10 in North America.

PRODUCTS AND SERVICES

Novatex is a computerized international business information service based on NAPLPS. Novatex provides decision makers with instant access to data banks of condensed, high-value business information through one convenient source. Novatex offers managers a significant improvement over other information services because it is centralized, up-to-date, pleasingly presented in text and graphics, and easy to use.

The attractive, easy-to-use terminals may be modified television sets, multi-use terminals or dedicated monitors. The Novatex data bank can be accessed via a hand-held alphanumeric key pad over normal dial-up telephone or data lines.

Novatex will prove useful to organizations doing business internationally.

Novatex users can generally access information supplied by the following departments of the Canadian government:

- External Affairs
- Industry, Trade and Commerce
- Canadian Government Office of Tourism
- Employment and Immigration Canada
- Agriculture Canada
- Foreign Investment Review Agency (FIRA)
- Fisheries and Oceans
- Statistics Canada

Novatex offers users three major types of services:

Specialized business applications: Information and transactional services, custom designed for specialized sectors, are provided on-line by established information providers in each sector. These services are of interest to executives who at present must rely on multiple sources to satisfy their information needs.

The major value of these applications includes ease-of-use and instantaneous updating from a single source, available to users on an optional subscription basis. One of the most important specialized applications now available is in the securities and commodities area.

General business applications: The Novatex data bank includes a wide spectrum of data directed towards the general business user. It includes:

- Continuously updated business news services and price performance of top stocks
- International commodity and monetary information
- Statistical trends and other data relating to international trade

The basic subscription fee permits access to this general business information and to messaging and other standard system features.

Corporate applications: Space is available in the data bank for use by multinational organizations in private applications for a low-cost fee. Videotex has been used successfully by a number of organizations for internal services. Novatex provides the opportunity for international expansion of these applications, which may include:

- Company management information
- Marketing support
- Worldwide messaging

Novatex has the following advantages:

- Single information source
- Concise information
- Instant 24-hour access
- Regularly updated
- Simplicity of use
- High-quality text and graphics
- Cost effective
- Interactive
- Messaging
- Transactional capability

FOR MORE INFORMATION

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Novatex
from Teleglobe Canada

TELETHOUGHT

COMPANY OVERVIEW

Telethought's aim is the development of superior content for use in videotex systems to ensure that the final product meets the requirements of the end-users.

Telethought has provided content research, database design and management, and graphic production for many different clients with very different needs. It has developed substantial content for all three of Toronto's NAPLPS systems — Teleguide, Vista and Videopress — as well as stand-alone systems.

Though most of its initial achievements have been with domestic systems, Telethought plans to pursue the international market with greater intensity. Recent research trips to Great Britain and the U.S. have been the first steps towards serving foreign videotex services.

Telethought's personnel have backgrounds in journalism, graphic design, mass media, conventional video production, and computer operation and programming. Their experience and capabilities go beyond using the products of one company or another.

EXPERIENCE

Recent major projects include:

- An exclusive agreement to provide Key Publishers with videotex-related consulting and production. At the time, Key was involved as a major information provider for the Toronto Teleguide system.
- An ongoing consulting assignment to provide management and technical liaison to Videopress, an in-mall videotex system operating in four Canadian shopping centres (including Toronto's Eaton Centre).
- Two substantial stand-alone NAPLPS databases created for the Ontario government, including the electronic information system used by its Ministry of Natural Resources at the Toronto Sportsmen's Show.

In addition, Telethought has been a major user of Cableshare videotex and frame creation equipment, and has played a significant role in its development.

PRODUCTS AND SERVICES

Telethought has developed an extensive line of content packages which can be easily modified for any kind of videotex system. Among the packages it can supply are:

- Transit guides
- Entertainment listings and reviews
- Store/mall directories
- Educational material (including a complete metric information/ conversion guide)
- Catalogues
- Quizzes and contests

Telethought can also:

- Develop made-to-order content packages, whether for a stand-alone application or one or more existing NAPLPS systems.
- Assist, on a consulting basis, new database systems in creating and developing user-oriented content.
- Service existing systems. Services can extend to libraries of computer graphics and providing accessories such as low-cost computer diskettes.
- Supply training on hardware and software which continues where the manufacturers' support leaves off. Telethought can give practical training on how to get the most out of a system.
- Assist firms and advertising agencies that wish to exploit videotex as a method for reaching the public with their messages.

FUTURE DIRECTIONS/ TARGET MARKETS

Within the next two years, Telethought plans to offer many content services in a manner which will provide new sources of revenue for system operators. This will involve an increase in export marketing, as well as solidifying its domestic base.

Telethought will also be exploring ways to involve the growing number of home-computer owners in the videotex marketplace.

FOR MORE INFORMATION

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Advertiser/Agency Support
Telethought Corp.
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N6J 1J1
Attn: Peter Watson
Tel: (519) 672-2432

Telethought Corporation

COMPANY OVERVIEW

The Ontario Educational Communications Authority, a provincial Crown corporation, operates the TVOntario Network under a mandate to provide educational opportunities to the people of Ontario through the employment of electronic and other media.

Over the years, the principal material product marketed by the Authority has been the rights to use television programs produced by TVOntario. Print materials related to these programs are also sold.

During the past five years, TVOntario has been laying the foundations for the provision of educational services that employ computers and computer communications. A significant part of that development has been participation in a three-year field trial of NAPLPS videotex and teletext technology and applications.

In April 1982, TVOntario entered a new phase of Telidon-based activity with the establishment of a videotex service (*Edutex*) and a teletext service (*Edutel*) for the use of secondary schools, youth employment centres and public libraries.

EXPERIENCE

As a result of its early involvement with NAPLPS, TVOntario personnel are familiar with a wide range of NAPLPS technologies and applications. TVOntario was the first to:

- Operate a teletext system based on Telidon.
- Develop educational applications of Telidon.
- Operate a videotex service based on NAPLPS, making full use of the colour range supported by NAPLPS, and serving users supplied with terminals capable of decoding NAPLPS features.

The videotex service, Edutex, is based in a Digital Equipment VAX host computer operating under VMS, and features the Infomart NAPLPS System Software — Version Two. Users access the service via Bell Canada's packet-switched network, *Data*pac. In order to produce database materials efficiently at the NAPLPS level, TVOntario has developed its own page creation software, Createx C.

PRODUCTS AND SERVICES

TVOntario offers two product lines:

Database Materials: Database materials have been produced with educational applications in mind. They include:

- Information on career development and job search
- Sequences that graphically illustrate processes or topics
- Informal branching "games"

Createx C Page Creation Software: Createx C, as the name implies, is a page creation software written in the language C.

- Linked with a NAPLPS decoder, it can be implemented on a variety of systems, including Digital Equipment PDP 11s operating under RT-11, and microcomputers operating under CP/M. It makes possible the creation of videotex materials using NAPLPS colours and features.

FUTURE DIRECTIONS/ TARGET MARKETS

Over the next two years, TVOntario intends to:

- Explore the potential of satellite delivery of videotex materials.
- Diversify its database offerings.
- Exploit the possibilities of the NAPLPS standard, using Createx C software.

Markets that stand to benefit from TVOntario's product lines include educational institutions and service operators across the U.S. and Canada.

FOR MORE INFORMATION

TVOntario (Telidon)
Marketing
Box 200, Station Q
Toronto, Ontario
Canada
M4T 2T1
Tel: (416) 484-2600
Telex: 06-23547

UNITED AUDIO-VISUAL RESOURCES

COMPANY OVERVIEW

In the early 1980s, United Audio-Visual Resources made its commitment to the NAPLPS industry by becoming representatives for the major Canadian NAPLPS manufacturers. Together with its sister companies, AVEC (in Ottawa) and AVSR (in Toronto), United represents:

- AEL Microtel
- Adeum Electronics
- Cableshare Inc.
- Celtic Technology
- Electrohome
- Formic Videotex Systems
- The Genesys Group
- Norpak Corporation

United is the founding member of "the Videoexperts", a cross-Canada equipment sales and rental network. This network was established to satisfy the requirements of United's customers, wherever they are located.

EXPERIENCE

United's owners have over 30 years of experience in the audio-visual and video broadcast equipment field. By participating in both national and international tradeshows, United has acquired the knowledge to help its clients solve their communications problems today and plan for those in the future.

PRODUCTS AND SERVICES

As United represents the major NAPLPS manufacturers, it has available a full line of NAPLPS equipment. This enables United to select hardware best suited to its clients' needs, whether decoders, terminals or graphic computers.

In cooperation with Adeum Electronics, United designed its own stand-alone presentation unit — the Infohut. The Infohut houses an RGB monitor and decoder, while the user accesses the information through a ruggedized keyboard. This ruggedized keyboard is extremely durable and easy to use.

United recently opened a new department entitled Videotex Services. This department has the in-house capabilities to transfer NAPLPS graphics to different media. The staff of this department has the expertise to train and consult on all the equipment United supports.

FUTURE DIRECTIONS/ TARGET MARKETS

1983 saw the opening of a joint venture between three Ottawa-based companies. Ottawa's *Info Vision* is the first commercial NAPLPS venture in the Ottawa-Hull area. With display kiosks located throughout the area, users can access up-to-date information on what is happening in Ottawa.

Ottawa's Info Vision is unique compared with other ventures of this type (e.g. Teleguide) in that its advertisers pay to be placed on the database displayed in the kiosks.

United is currently supplying all of the hardware and the kiosks, and the Genesys Group is managing the software. The positive response to Info Vision in Ottawa has led United to direct its marketing towards these types of special projects, as Info Vision can be a success story anywhere in North America.

United is also spending a great deal of time educating its staff members about the dynamic NAPLPS technology. This knowledge has enabled them to go after special NAPLPS projects to supply the equipment and the expertise to make a project a success.

Aside from Ottawa's Info Vision, United has worked on, and seen the success of, the Inuit world communication project. It is currently dedicating itself to making a similar success of the CHIP pilot project of the Canadian Department of Energy, Mines and Resources.

FOR MORE INFORMATION

United Audio-Visual Resources
44 Bayswater Avenue, Suite 100
Ottawa, Ontario
Canada
K1Y 4K3
Attn: Kirk Lidbetter
President
Tel: (613) 725-0406

AVEC Service Audio-Visual
8571 St. Denis
Montreal, Quebec
Canada
H2P 2H4
Attn: Phil Gregory
Tel: (514) 848-9173

AVSR
1770 Mattawa Avenue
Mississauga, Ontario
Canada
L4H 1K1
Attn: Dave Hounsell
Tel: (416) 275-6010

COMPANY OVERVIEW

The University of Guelph is the major teaching and research centre in Canada for agriculture and veterinary medicine. The University is assessing the information needs of its audiences of farmers, agribusiness personnel and veterinarians and is exploring the effectiveness of NAPLPS videotex as a means of meeting those needs. Universitel is also developing applications to reach other specialized user groups, including high school teachers and students, the general public, university students and industry personnel.

EXPERIENCE

The University of Guelph, in partnership with Grassroots, Infomart, is developing a database to serve Ontario agriculture. In early 1983, Universitel and Infomart conducted a six-month field trial with 40 farmers in the Guelph and Chatham agricultural areas plus the following firms: Deloitte, Haskins and Sells Associates, First Line Seeds Ltd., CIBA-GEIGY Canada Ltd., Chipman Inc., Pioneer Hi-Bred Ltd., Shur-Gain Division of Canada Packers, and Cyanamid Canada Ltd.

The University has developed videotex programs to accompany its exhibit program, to aid in undergraduate instruction, and to complement its liaison programs for both high school students and counselling programs for on-campus students. A campus-wide videotex information network is now being implemented.

Universitel has worked closely with equipment and software suppliers in testing and evaluating equipment. This effort has resulted in improvements in hardware and software to meet the needs of production units and users in the field. Companies involved include Electrohome, Norpak, Formic, IBM (Canada), Microstar, Tayson and Homestead Computers.

Universitel customers and other information providers include Ontario Waste Management Corporation, Ontario Ministry of Agriculture and Food, York University, United Co-operatives of Ontario and several suppliers of medical and veterinary products.

PRODUCTS AND SERVICES

Capitalizing on its traditional areas of expertise, the University of Guelph is developing videotex content in agriculture and veterinary medicine, exploring instructional applications, and developing training programs related to videotex. Areas include:

- Consultation and services in product development, hardware selection, software development, content development, telecommunications networking, project organization (management), database management, development of self-authoring programs, system design and engineering, field project management, equipment and system installation, programming for microcomputers or main frame computers, software installation, maintenance and marketing.
- Specialized Training Seminars on page creation, maintenance, programming and software development, marketing, production management, content development and database management.

FUTURE DIRECTIONS/ TARGET MARKETS

Universitel is continuing to develop an agricultural NAPLPS database in collaboration with faculty of the Ontario Agricultural College, Guelph University.

VET-TEL, a service for practicing veterinarians, is being planned in collaboration with faculty and staff of the Ontario Veterinary College for implementation in 1984.

A Course Authoring System for Education (CASE) using NAPLPS for content presentation is being developed for instructional applications. Initial work has been done for courses in computer literacy, zoology and veterinary medicine.

Other future directions include expanding the Universitel telecommunication network in rural Ontario, developing interactive content applications, and developing techniques to download software from the host database to a microcomputer.

FOR MORE INFORMATION

Universitel
Office for Educational Practice
University of Guelph
Guelph, Ontario
Canada
N1G 2W1
Attn: Ian Easterbrook
Tel: (519) 824-4120
Ext. 3107

VIDEOACCESS

COMPANY OVERVIEW

The key to self-sustaining profitability at the system operator level for NAPLPS-based communications systems requires superior user content.

VideoAccess has the following aims and objectives:

- To support the database and content requirements of Cableshare videotex installations wherever they are located, without infringing on the local sales efforts of those systems.
- To provide content and stock graphics to system operators, which substantially reduces the administration and production overhead.
- To assist national advertisers and their agencies to use Cableshare videotex technology.
- To serve as an electronic publishing resource centre.

EXPERIENCE

VideoAccess has provided continuing database management of Videopress, an in-mall videotex system operating in four Canadian shopping centres. VideoAccess provides commercial sponsors with information packages.

PRODUCTS AND SERVICES

Research: VideoAccess provides development services. It draws on an in-depth understanding of the technical parameters of the interactive medium, as well as top editorial graphic design skills and a facility in marketing.

Consulting Services: VideoAccess offers consulting services to meet the individual needs of Cableshare videotex installations. Areas of expertise are start-up database design, account servicing, management and coordination of the videotex production process, staffing recommendations and critical path planning.

Content Development: VideoAccess develops content packages which can be used without modification on multiple databases. It offers proven content packages which expand the revenue potential of your database.

Electronic Magazines: VideoAccess publishes small, manageable 'magazine format' monthly databases. Each 'magazine' contains approximately 250 pages of information. About 75 percent remains unchanged, while 10 percent is updated monthly. The balance contains national sponsors. A window format is provided to allow the system operator to insert local advertising sales.

Existing Magazines

- Garden Guide
- Summer Fun
- Winter Fun
- Christmas Crafts
- Home Improvement
- Home Computing

Electronic Library: VideoAccess cares about content first — high-quality, useful, well-organized and attractively presented content. It offers a new turnkey approach to videotex database management with library stock graphics, logos, formats, type fonts and idea starters that will save creative production time and money too.

Page Creation Services: VideoAccess provides a complete page creation service, including copywriting, editing, page documentation, graphic design, input and updating.

Marketing Services: VideoAccess markets syndicated content modules developed by other information providers.

Placement: VideoAccess advises national advertisers and their agencies on how best to get their message across on videotex, teletext and cable TV.

FUTURE DIRECTIONS/ TARGET MARKETS

Future Magazines:

1984

- Car Care
- Senior Update
- Bridal Update
- Fitness & Nutrition Tips
- Drug Guide
- '84 Olympic Overview

1985

- Music News
- Home Plant Care
- Household Tips
- Horoscope
- Diet Tips
- Travel Tips
- Kitchen Tips
- Children's Fun
- Fun House
- Tax Tips
- Metric Conversion
- Recipes

FOR MORE INFORMATION

VideoAccess
24 Erie Avenue
London, Ontario
Canada
N6J 1J1
Attn: Peter G. Watson
Tel: (519) 672-2432

COMPANY OVERVIEW

Videotex Atlantic Limited is a full-service agency for the design, production and management of videotex programming and databases for business and industry. The company represents major videotex software and hardware manufacturers and provides equipment for sale and rental. Videotex Atlantic, incorporated in 1982, is owned and operated by Atlantic Canadians.

Videotex Atlantic is a founding member of a national network of videotex companies. It can respond to the videotex requirements of its clients anywhere in North America.

Videotex Atlantic provides full-colour, NAPLPS-compatible graphics and text for presentations, promotions, advertising and merchandising. Presentations are developed by a creative and informed team of professionals.

Videotex Atlantic provides complete system design and management, including internal and external corporate communications systems and networks. As well, Videotex Atlantic is active in the development of innovative videotex software and hardware for a variety of applications.

EXPERIENCE

The principals of Videotex Atlantic have been involved in the videotex industry since 1980. Strong backgrounds in retail advertising, traditional broadcasting and corporate communications are brought by the creative staff to all assignments.

Videotex Atlantic has developed a reputation for comprehensive, creative videotex presentations in many display formats, including:

- Major videotex presentations for a variety of corporate clients such as Mobil Oil Canada Limited, Novatron Information Corp., and a number of shopping centres and other retail operations.
- The production of tradeshow and convention directories and information databases.

PRODUCTS AND SERVICES

Videotex Atlantic provides creative, management and consulting services. Services and products can be used for:

- Advertising
- Tourist promotions
- Sales presentations
- Cable TV programming
- Tradeshow presentations
- Conferences
- Education and training
- Electronic messaging
- Guides and directories

Videotex Atlantic's creative services feature the design and production of:

- Videotex audio-visual presentations
- Page creation with full-colour NAPLPS text and graphics
- Program revision and updating
- Videotex-videodisc programming

Videotex Atlantic also provides:

- Custom 35 mm slides using the new technology for fast turn-around.
- The identification of corporate communications requirements and appropriate videotex applications for business and industry.
- Short and long-term management of videotex databases; in addition, client staff can be trained to assume full management responsibility for videotex systems.
- Equipment rental and leasing, as well as sales with full equipment maintenance and technical support.
- A complete selection of videotex equipment from decoders and page creation units to large-screen terminals and public display booths; all the major manufacturers are represented through a network of associated companies.
- All the necessary equipment for a single-screen, stand-alone presentation or a full system for a convention centre, shopping mall or other large installations.

FUTURE DIRECTIONS/ TARGET MARKETS

Videotex Atlantic will continue to service the videotex communications and marketing requirements of business and industry, with emphasis on the retail consumer market. Unique and creative applications in the new technology will be a specialty, as will convention and trade show advertising and information databases. Cable television and teletext/videotex programming will be an area of emphasis and development. Videotex with audio capability is a major research and development investment for Videotex Atlantic.

FOR MORE INFORMATION

Videotex Atlantic Limited
1717 Barrington Street
P.O. Box 493
Halifax, Nova Scotia
Canada
B3J 2R7
Attn: J.D. MacCulloch
President
Tel: (902) 423-9600

VIDEOTEX ATLANTIC

VIDEOWAY INC.

COMPANY OVERVIEW

Videoway is a Canadian corporation recently formed to manufacture and market an advanced home information system.

EXPERIENCE

Early Videoway decoders have been field-tested by several of the operating companies within the Vidéotron group. Planning began in 1982 for installation of decoders within the Vidéotron network. Recently Videoway announced that system planning has begun for networks in the U.S., Europe and Australia.

PRODUCTS AND SERVICES

Videoway provides an evolutionary path towards a fully integrated home information system serving the diverse requirements of the network provider, the service provider and the information provider.

At the network level, Videoway can design and deliver a one- or two-way broadband telecommunication network or network addition. The network can be designed to incorporate existing coaxial cable and microwave links, augmented by fibre optics and satellite broadcasting systems where required. The network will be optimized for use with the Videoway Cable Network Centre and Home Interface Unit.

The needs of the service provider are easily met with standard or customized system software that provides down loaded features to the Home Interface Unit. These services include:

- The transmission of stereo radio and cable TV channels.
- Selective distribution of special services, including Pay TV, news headlines, weather and sports information through cable TV channels.
- High-speed, full-channel selective videotex services with a 20,000 page NAPLPS database. The user interactively controls page access.
- Two-way communication for transactions, pay-per-view television, monitoring systems and interactive applications.

For the information provider, full use can be made of the two-way nature of the system with the addition of teletransaction facilities such as telemetering, teleshopping and electronic mail. Specialized software interfaces can be created to allow the provision of services that operate in conjunction with information providers' current order entry and information retrieval systems. This result is a clearly defined evolution into the field of services to the home.

The Videoway decoder is a small, practical unit equipped with an infrared hand-held control module. The unit provides the following functions:

- Channel selection for the usual cable TV services.
- Television fine tuning, volume and power control.
- Access to a menu of selective information sources, including Pay TV, external databases, captioning and other electronic services.
- Access to an internal 20,000-page NAPLPS database, a subset of a master database of up to 5,000,000 pages. The local database can be changed in whole, or in part, at any time by the cable operator.
- A small local network which interconnects various peripherals, including videotape recorder, personal computer printer, disk drives, etc., and provides access to an electronic user's manual.
- Access to the electronic down loading of video and audio cassettes as well as computer software for home computers and video game consoles.

Options allow for:

- Greater keyboard functionality
- Two-way analog and digital communication
- Fire and theft prevention monitoring
- Energy management

FUTURE DIRECTIONS/ TARGET MARKETS

The potential market for Videoway is the worldwide cable TV market — estimated to be 50 million homes for North America alone. This market will increase as home computing and computer-aided instruction become widely used.

Firm orders have already been received for more than 100,000 units by mid-1984 and estimates place 1985 production at between 250,000 and 500,000 units.

FOR MORE INFORMATION

Le Groupe Videoway Inc.
1010 Sherbrooke St. West
23rd Floor
Montreal, Quebec
Canada
H3A 2R7
Tel: (514) 285-5700

videoway

COMPANY OVERVIEW

Viscount Industries was incorporated in March 1973 and is a wholly-owned subsidiary of AEL Microtel Limited.

Viscount Industries designs, develops, manufactures and markets video switching equipment, specialized telephone testing products, and Microtel's fully-integrated NAPLPS business terminal. It also provides customers with customized manufacturing capabilities.

Over the years, Viscount Industries Ltd. has developed considerable expertise in various areas such as specialty telephone test equipment, video equipment and custom manufacturing for other companies. More than fifty different items are produced, ranging from small mass-produced items to high-technology and microprocessor-based equipment.

EXPERIENCE

Viscount's activities cover a wide range of customers such as:

- Major telephone operating companies
- Broadcasters
- Cable companies
- Educational institutions
- Videotex systems operators
- Videotex closed-user groups

Major customers/applications for Microtel terminals in the last three years have been:

- Infomart: public information retrieval terminals (Teleguide System) installed by the Province of Ontario; business applications.
- Faxtel: stock market charting.
- Cableshare: Videopress; public information retrieval terminals.
- Federal Government: public information retrieval terminals; database enquiring.
- B.C. Telephone Company: public information retrieval systems.
- Bell Canada: messaging; database enquiring.

PRODUCTS AND SERVICES

Telephone Equipment: Design, development, manufacturing and marketing of equipment related to the telephone industry. This activity includes only proprietary equipment designed by Viscount. It is currently limited to some specialty telephone test equipment such as outlet testers, subscriber line testers, card testers and call simulators.

Video Equipment: Manufacturing and marketing of video programming and switching equipment. This activity includes only proprietary equipment designed by Viscount and sold to a wide variety of institutions ranging from broadcasters and cablecasters to schools and universities. Sales are made through an established network of distributors.

Contract Manufacturing: Production and assembly of electronic equipment and circuitry, not proprietary to Viscount Industries. Although this activity often necessitates some engineering, the product is mostly designed by the customer and contracted to Viscount for manufacturing.

NAPLPS Terminals: Manufacturing and marketing of Microtel's fully-integrated terminal (designed by Microtel Pacific Research, Microtel's research arm).

The VTX 208, Microtel's third generation integrated terminal, can be used in videotex information systems, in computer graphics applications and as a standard computer terminal.

The VTX 208 interprets NAPLPS Picture Description Instructions (PDIs) to display graphic and alphanumeric information in up to 16 colours from a palette of 4,096 different shades.

Using NAPLPS, the terminal shows the superb quality of the videotex display. It has an attractive desk-top design, with innovative details such as keyboard programmable baud rate and parity, smooth scrolling and front-mounted brightness control.

Users operate the terminal and access various host computers from a full keyboard capable of generating all ASCII codes, as well as user-definable special functions. Also built into the terminal are a comprehensive series of self-test diagnostics and test patterns to minimize the effort required for maintenance and servicing.

FOR MORE INFORMATION

Viscount Industries
105 East 69th Avenue
Vancouver, B.C.
Canada
V5X 2W9
Attn: A.J.F. Gerrebos, P. Eng.
General Manager
Tel: (604) 327-9446
Telex: 04-508605

SYSTEMS DIRECTORY

Company Name	Page	Software	Hardware	System Consultant	Turnkey Systems	Computer Communications	Information Provider	Other	Comment
ADEUM ELECTRONICS	7		✓						Ruggedized Keyboards/Terminals public use
AVCOR	8	✓		✓	✓				Audiovisual services, Commodore & IBM PC
BCC GROUP	9		✓						Enclosures for public use
CABLESHARE	10	✓	✓	✓	✓	✓	✓		Wide range of sysems, IBM & DEC PC s
CANADIAN CAPTIONING	11			✓				Captioning	
CEMCORP	12	✓	✓	✓	✓	✓			Microcomputers, Education
DELPHICRAFT	13			✓			✓		Database Packages
DMR	14			✓			✓		
DOUSERV	15			✓		✓			
ELECTROHOME	16		✓	✓					Full range of terminals & Monitors
FAXTEL	17	✓		✓	✓	✓	✓		Compatible to IBM PC
FORMIC	18	✓	✓		✓			Training	Apple PC Based Systems
FULCRUM TECHNOLOGIES	19	✓		✓					IBM PC Based Systems
GENESIS RESEARCH	20						✓		Data Base Packages
GENESYS GROUP	21	✓		✓	✓	✓	✓		DEC Based Systems
GIPSY	22	✓			✓				Honeywell Based Systems
HOME MANAGEMENT	23								Database Packages
IDON CORPORATION	24			✓				Training	
IMAGE BASE	25			✓				Training	
INFOMART	26	✓		✓	✓	✓	✓		Wide range of systems implemented
INFONORTH	27			✓			✓		
I.P.SHARP	28	✓		✓		✓	✓		
KEYSTONE	29			✓			✓	Training	
LANSDOWNE	30	✓		✓	✓			Training	
LIMICON	31	✓						Training	Commodore PC Based Systems
MARCONI BAIRD	32						✓		Page Creation Services

Company Name	Page	Software	Hardware	System Consultant	Turnkey Systems	Computer Communications	Information Provider	Other	Comment
McLEOD, YOUNG, WEIR	33						✓		
MEP	34	✓					✓	Weather	Weather Related Services
MICROSTAR	35	✓		✓					IBM PC Based Systems
MICROTAURE	36	✓		✓					IBM PC Based Systems
MTX TELECOM SERVICES INC.	37			✓	✓	✓	✓		Commodore software
NABU	38	✓	✓		✓	✓	✓		
NETWORK VIDEOTEX SYS. INC.	39		✓						IBM PC Decoder Board
NORPAK	40	✓	✓	✓	✓	✓	✓		Terminals, Systems, Page Creation
PERLE SYSTEMS	41	✓	✓	✓		✓			
SONOPTIC	42			✓					
ST CLAIR	43								Audio-visual Services
STATISTICS CANADA	44						✓		Telichart
SYSTEMHOUSE	45	✓		✓	✓				
TALAMARK	46	✓		✓					
TAYSON	47	✓		✓	✓				
TELECOM CANADA	48	✓	✓	✓	✓				Intelligent Network
TELE-DIRECT	49						✓		
TELEGLOBE CANADA	50					✓	✓		
TELETHOUGHT	51						✓	Training	
TV ONTARIO	52	✓					✓		Wide Range Educational Systems
UNITED AUDIO VISUAL	53		✓						Audio-visual Services
UNIVERSITEL	54						✓		Agriculture
VIDEOACCESS	55						✓		
VIDEOTEX ATLANTIC	56						✓		Audio-visual Services
VIDEOWAY	57	✓	✓	✓	✓	✓	✓		Cable Home Terminal
VISCOUNT	58		✓						

CANADIAN TRADE OFFICES

UNITED STATES

More information can also be obtained by contacting the Canadian government representative nearest you:

WASHINGTON, D.C.
Embassy of Canada,
1746 Massachusetts Avenue N.W.,
Washington, D.C. 20036-1985
Tel: (202) 785-1400

ATLANTA
Canadian Consulate General,
400 South Omni International,
Atlanta, Ga. 30303-1290
Tel: (404) 577-6810

BOSTON
Canadian Consultate General,
5th Floor,
500 Boylston Street,
Boston, Mass. 02116-3775
Tel: (617) 262-3760

BUFFALO
Canadian Consulate General,
Suite 3550,
1 Marine Midland Centre,
Buffalo, New York 14203-2884
Tel: (716) 852-1247

CHICAGO
Canadian Consulate General,
Suite 1200,
310 South Michigan Avenue,
Chicago, Ill. 60604-4295
Tel: (312) 427-1031

CLEVELAND
Canadian Consulate General,
Illuminating Building,
55 Public Square,
Cleveland, Ohio 44113-1983
Tel: (216) 771-0150

DALLAS
Canadian Consulate General,
2001 Bryan Tower, Suite 1600,
Dallas, Texas 75201-3051
Tel: (214) 742-8031

DETROIT
Canadian Consulate General,
1920 First Federal Building,
1001 Woodward Avenue,
Detroit, Mich. 48226-1966
Tel: (313) 965-2811

LOS ANGELES
Canadian Consulate General,
510 West Sixth Street,
Los Angeles, Calif. 90014
Tel: (213) 627-9511

MINNEAPOLIS
Canadian Consulate General,
Chamber of Commerce Building,
15 South Fifth Street,
Minneapolis, Minn. 55402-1078
Tel: (612) 333-4641

NEW ORLEANS
Canadian Consulate General,
Suite 2110,
International Trade Mart,
2 Canal Street,
New Orleans, La. 70130-1459
Tel: (504) 525-2136

NEW YORK
Canadian Consulate General,
1251 Avenue of the Americas,
New York, N.Y. 10020-1175
Tel: (212) 586-2400

PHILADELPHIA
Canadian Consulate General,
Suite 1310,
3 Parkway Building,
Philadelphia, Pa. 19102-1366
Tel: (215) 561-1750

SAN FRANCISCO
Canadian Consulate General,
11th Floor, 1 Maritime Plaza,
Golden Gateway Center,
San Francisco, Calif. 94111-3468
Tel: (415) 981-2670

SEATTLE
Canadian Consulate General,
412 Plaza 600,
Sixth and Stewart,
Seattle, Wash. 98101-1286
Tel: (206) 223-1777